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*Illustrated.

**Fuel Economy on the Great Western**

An interesting feature of the fuel economy campaign being conducted on the Chicago Great Western, a description of which is published elsewhere in this issue, is the success attained in determining the amount of coal used by each engine crew. In contrast to the results obtained on some roads the automatic recording scale for weighing the coal delivered to locomotive tenders has given satisfactory service. The method of estimating the amount of fuel left on the tenders on arrival at terminals by means of metal strips on the sides of the coal space is also giving good results. This estimating is done by one man at each roundhouse, who becomes sufficiently experienced to give a close estimate. The secret of the satisfactory use of the scales is in their periodic inspection and careful maintenance. Another thing in favor of the plan adopted by this road for the economical use of fuel is its organization. The superintendent is supreme on each division over every department. He is held responsible for the fuel record on his particular division; and because of his absolute authority he is in a position to enforce the proper co-operation between the different departments. The economical use of fuel is a live issue all over the road, and the enginemen display a friendly rivalry in seeking to head the published list each month. The fuel potential is not placed so high but that it may be beaten by some of the more careful crews, with the result that the crews have faith in the figures and know that the management desires to give them a fair chance. The success of any system is dependent largely on the faith the men concerned have in it, and from all reports the one in effect on the Great Western has the confidence of the enginemen as well as of the officers of the road.

**An Achievement by Private Ownership**

On Monday of this week Mayor Mitchel of New York talked by long distance telephone directly with Mayor Rolph of San Francisco. This inauguration of direct long distance telephone service between the Atlantic coast and the Pacific coast is the result of a successful achievement by private ownership of a public utility unaided by government and in spite of restrictive legislation. To get a telephone connection with a number in London from anywhere outside of a radius of 25 miles takes fully half an hour, and when the connection is at last obtained it is so bad, 50 per cent of the time, and so interrupted, as to try the patience of a saint. In England, as in France and other European countries, the telephones are operated by the government. The establishment of direct telephone service between New York and San Francisco cannot help but stir the imagination even of a people who have become casehardened to the achievements of modern science. As a matter of fact, however, it is no more of an achievement and no more deserving of admiration and praise than is the perfection of the kind of telephone service that is given in a single city like New York or Chicago. If it were possible to make a statistical compilation showing the percentage of avoidable annoyances in telephone connections to the total possibilities of annoyance through some slight error or carelessness on the part of operators, the minuteness of this percentage would be striking. The perfection of training of the telephone operators generally in a city like New York is a stupendous task and its successful accomplishment is undoubtedly in very large measure due to the will of one man impressing on the minds of subordinate officers that courteous service by telephone operators must be attained. Such a result under government ownership is inconceivable.

**The Long Island and the Pennsylvania**

Dick Brothers, a brokerage house of New York, after having offered to sell to the Pennsylvania their holdings of the minority stock of the Long Island at par, which offer was, of course, refused, have sent out a circular to Long Island minority stockholders charging the Pennsylvania with mismanagement of the Long Island. In an attempt to show that this is not an ordinary case of holdup, Evans R. Dick has drawn attention to the fact that in 1900 the Long Island was prosperous, and in 1913 showed a deficit of more than $1,000,000. As a matter of fact, 1900 happened to be one of the most prosperous years in the history of the Long Island and in that year it earned $59,000 above interest and fixed charges, or half of one per cent, on its $12,000,000 stock; and even in that year, after crediting this $59,000 to profit and loss, it was carrying a debit balance in the profit and loss account of $844,000. The charges against the Pennsylvania should be dismissed without mention were it not that they call attention in a rather interesting way to the inadequacy of passenger rates at a time when this subject is particularly interesting to the Interstate Commerce Commission and rail-

road managers all over the country. The Long Island is dependent for more than half of its total gross revenue on passenger business. The road does a very large commutation business, but its commutation rates are generally higher for short distances than on the other roads doing a large commutation business out of New York City. The road is particularly well managed, Mr. Thornton's "call" by England being a commentary on the management of the Long Island. Passenger business is dense and in some respects analogous to the business on English railroads. Nevertheless, the Long Island has been adding, almost without exception, each year to its deficit, the Pennsylvania really standing the losses. The particular minority stockholders who have raised the protest are not in need of sympathy, but railroad stockholders generally, and also the Interstate Commerce Commission and especially the state commissions, should carefully study the Long Island situation. The Interstate Commerce Commission has shown in various ways that it is aware of the inadequacy of passenger rates, but state commissions are still either wilfully or ignorantly unaware of the facts.

## WHAT SHALL BE DONE REGARDING THE VALUATION?

SOME people believe and allege that the railway managers are opposed to the continuance of the federal valuation of railways. They are mistaken. The leading railway managers are divided in opinion on this subject. Some of them believe that the valuation should be discontinued at once, on the ground that it would not afford a practical basis for the regulation of rates, and that therefore to carry it to a completion would be a waste of both the railroads' money and the public's money. Others advocate making a valuation of only some group of roads, to determine the practicability of using valuation as a basis for the regulation of rates.

Still others favor carrying the project through to completion. No railway manager regards valuation as a desirable or practicable basis for regulating all rates. But a large part of the public still believes that the railways as a whole are overcapitalized, and that a valuation of their properties should be made to determine whether their net earnings and rates in general are reasonable. The railway managers who favor completing the valuation are confident that as to a large majority of individual roads it will exceed their capitalization, and that as to the railways as a whole it will greatly exceed their capitalization; and they wish to see it finished as a means of confuting those who charge that the railways are overcapitalized, and of establishing their right to larger net earnings and advances in rates.

A highly interesting discussion of the question of the continuance of the valuation work was contributed to the *Railway Age Gazette's* annual review number, published January 1, by Charles A. Prouty, director of valuation of the Interstate Commerce Commission. Mr. Prouty makes a very able and persuasive argument for the continuance of the valuation. He points out that, regardless of anybody's opinion concerning the practicability of using valuation as a basis for the regulation of rates, the courts have held that it is the chief standard for measuring their reasonableness as a whole. He concedes that it would be folly for the Interstate Commerce Commission to hold that it could not act on petitions of the railways asking for advances in rates until after the valuation is done; and he also concedes that after the valuation is finished the commission probably should not restrict the railways to a return on their valuation so low as barely to avoid confiscation. But, he argues, the commission and the courts should have a valuation to serve as a guide in the regulation of rates as a whole, and the problem of regulating them will never be solved until a valuation is made.

While we recognize the force of Mr. Prouty's argument, we believe that there is much force also in the contention that instead of trying to make a valuation of railroads in all parts of the country at once, as the commission is now doing, it would be best for it to confine its work for the present to some one group of railways, and, if a valuation of all is to be made, to take them up group by group. Suppose that it goes on making simultaneously valuations of one road in the East, of another in the South, of another in the Northwest, of another in the Southwest, and so on, as it is now doing. It has been estimated that it will take ten years to finish the appraisal of all the lines in the country. If so, by pursuing its present policy, in ten years from now the commission will report a valuation for all railways which will not be as of the same date for any two roads in the same group. It will report a valuation as of one date for the Baltimore & Ohio and as of another date for the Pennsylvania. It will report a valuation as of one date for the Great Northern, and as of another date for the Chicago, Milwaukee & St. Paul. This procedure, it would seem, would render it impossible to regulate the rates in any territory with reference to the valuation until it was entirely finished, because rates must be regulated, if they are to be fairly regulated, on groups of railways, and not on individual railways. Another result might be, it would seem, that it would be impossible to use the valuation as a basis for the regulation of rates at all because of the differences between the dates on which it would be finished on different railways in the same group. Suppose that the valuation on the Baltimore & Ohio were finished in 1916, and that on the Pennsylvania in 1924. Could valuations of these two roads finished eight years apart be used as bases for the regulation of their competitive rates? It is true that it is planned after the valuation of a road is made to keep it up to date by accounting methods, but the courts hold that the measure of the reasonableness of rates fixed by public authority is the value of the property at the time they are fixed, and it is very questionable whether a valuation made five or ten years ago and kept up merely by bookkeeping methods would be accepted as a satisfactory valuation today.

Suppose, on the other hand, that the commission should take the railways a group at a time. There would be no serious difficulty in dividing them into groups. The New England lines naturally fall into one group, the Eastern Trunk lines into another, the Central Freight Association lines into another, the Trans-Missouri lines into another, and so on. It would take nowhere near as long to make a valuation of one group as to make a valuation of all groups. Under this plan the valuation of all the railways in a group would be made as of the same date. When the valuation of one entire group was finished the commission could at once begin to regulate rates with reference to it. The legal questions which the making of the valuation, and the attempt to use it as a basis for the regulation of rates, are sure to raise can be raised just as well in respect to the valuation of a single group of roads as in respect to the valuation of all the railways. If the valuation of a single group were begun now and pushed to completion these legal questions might be raised and settled before the valuations of most of the other groups were finished, or perhaps even begun. The settlement of these questions would be of immense value to congress and the commission in dealing with the valuation of the other groups.

Furthermore, if the commission should evaluate the roads group by group it would be only a comparatively short time until some practical use could be made of the valuations of one or more groups—assuming that the valuation will be of any practical use at all; whereas, if the commission continues its present policy of making valuations of roads scattered all over the country, little or no use, it would seem, can be made of the results until the entire work shall be finished, and all the legal questions shall be fought out in the courts, which would be years in the future.

The argument in favor of taking up the railways group by group seems overwhelmingly strong, and it is to be hoped that this plan will be given early and serious consideration by the commission. It seems to be the right plan, whether the matter be viewed from the standpoint of those who question the desirability and practicability of valuation as a basis for the regulation of rates, or from the standpoint of those who, like Director Prouty, have no doubt of its desirability and practicability. If

valuation is undesirable and impracticable, then the valuation of the railways by groups will prove this sooner than the policy now being pursued. If valuation is desirable and practicable, then valuation by groups will prove this sooner, and produce results which will be of practical use sooner, than the policy now being followed.

## THE WORK OF THE BOARD OF MEDIATION AND CONCILIATION

THERE is a fundamental difference between the work which can be done by the Board of Mediation and Conciliation and that which can be done by an arbitration board. The United States Board of Mediation and Conciliation can never arbitrate any question. If it does its usefulness has begun to be impaired on the claim that it has taken sides. Neither can the Board of Mediation and Conciliation be concerned solely with abstract justice. A sound judgment of expediencey and an absolute impartiality are more important to it than a theoretical knowledge of abstract justice.

The board appointed by President Wilson, of which Judge Chambers is the commissioner, Judge Knapp the other member and W. W. Hangar the assistant commissioner, has held office for a little over a year. Its first annual report was made public recently and an abstract of it is given elsewhere in this issue. On the whole the working of the new law has been a material improvement over that of the Erdman act, and the board's work may fairly be considered a success. Few railroad men, however, really understand the nature of the work of this board, and there is nothing in the board's report describing what this work is. The procedure of the board in a dispute is in most cases substantially as follows: One or both sides to the controversy call on the board to intervene. The board then goes first to one side and then to the other, becoming the confidant of both. Of course neither side is willing to show its hand to the other side, but is willing to indicate to the mediation commissioner the nature of the concessions which it is prepared to make and the points on which no concessions will be made. It then becomes the duty of the commissioner to decide whether or not there is any possibility of agreement short of arbitration. If there is his work lies in getting the necessary concessions from each side so as to make the two parties to the controversy approach a common level, each one, however, being kept in ignorance of how far it is necessary for that side to go and how far the other side has already gone. Shrewd judgment, impartiality, a knowledge of human nature and of the prejudices and idiosyncrasies of labor leaders and employers are essential, and with all must go great firmness. Both the employer and the labor leader are often engaged in playing a game partly with the backing of the cards which they actually hold and partly on the strength of their ability to bluff. It is no part of the commissioner's duties to help either side win this game. His duty consists in preventing a deadlock.

If a Board of Mediation and Conciliation were once to arbitrate a particular question it would have made a ruling amounting to a precedent on which one or the other side would bank in a future controversy, while one or the other side would refuse to accept mediation because their point had already been decided against them.

In this connection the board's report says:

"In not a few instances the parties have requested and even urged the board to settle their controversies as if in arbitration, but this the board has declined to do; because, in the first place, in its opinion, the language of the law did not confer such authority, and, secondly, because it would jeopardize if not destroy mediatory efficiency of the board. The board advises, and makes rulings, but always without binding the parties to accept the same."

It will readily be seen, therefore, that the Board of Mediation and Conciliation can never make public either the justice or the injustice of the position taken by either party to a controversy.

The annual report of the present board is almost, if not quite, unique among recent reports of government administrative bodies in that it specifically asks that no further powers be conferred on the commission. The very thought must be positively stunning to the great majority of state and federal commissions. However, in this particular case, although the board is unquestionably right in asking that no further powers be assigned to it, there is a function in connection with labor disputes, the exercise of which should be productive of much good, but which is not provided for in the Newlands act. The Board of Mediation and Conciliation can attempt to bring together two parties to a controversy. If it fails an arbitration board can decide the specific points at issue; but only incidentally does the public hear an impartial exposition of the merits of the whole controversy. What is there to keep railroad officers, on the one hand, from refusing arbitrarily an obviously just demand of employees, or labor leaders, on the other hand, from making preposterous and utterly indefensible demands, trusting that in the case of bluff which follows they may gain something, having nothing to lose. With impartial publicity given to the merits and demerits of both sides of a controversy, public opinion would act strongly to deter either side from taking an indefensible position. Since the Board of Mediation and Conciliation is entirely barred from giving away the secrets of either side, there might be some commission or commissioner whose duty it would be to make a thorough, impartial investigation of the merits of any controversy which was serious enough to lead either to open hostilities, a call for arbitration or a call for mediation; and after such an investigation had been made to make public the facts in an entirely impartial and non-partisan statement.

## ONE EFFECT OF RETRENCHMENT IN MAINTENANCE OF WAY EXPENDITURES

IT is common knowledge that the past year has been one of severe retrenchment for the railroads. When reductions in expenditures are necessary, the maintenance of way department suffers particularly, for almost invariably it is felt that retrenchment can be effected here without the detrimental results becoming evident as quickly as elsewhere. While no one believes that such a reduction results in ultimate economy, there are times when it becomes absolutely necessary to cut expenses somewhere. In addition to the fact that the detrimental effects are not evident at once, the impression frequently exists that the results of retrenchment in maintenance of way expenditures are confined to the track and structures themselves. But, there is an increasing realization of the fact that the neglect of maintenance of way is reflected directly in increased transportation expenses arising from increased delays to trains and ultimately in a decrease in trainloading, etc.

Deterioration in the condition of the track also contributes to increased charges for the maintenance of equipment. The figures given below show the expenditures for maintenance of way and for maintenance of equipment and the gross earnings of 15 representative roads with over 77,000 miles of line for the first three months of the present fiscal year, and for the same periods of the two preceding years.

EARNINGS AND EXPENDITURES, JULY 1–SEPTEMBER 30

| | Maintenance of way per mile of line | Maintenance of equipment per mile of line | Gross earnings per mile of line | Cars in shop (all roads) | Per cent of cars in shop to total (all roads) |
|---|---|---|---|---|---|
| 1912..... | $528 | $645 | $3,951 | 157,090 | 6.84 |
| 1913..... | 574 | 688 | 4,042 | 177,114 | 7.50 |
| 1914..... | 511 | 688 | 3,966 | 212,930 | 8.84 |

Thus, while the expenditures for maintenance of way for the first three months of the fiscal year 1914 were 3 per cent *below* those for 1912, the charges for the maintenance of equipment have *increased* 7 per cent, with practically the same business handled, while the number of cars in the shops increased almost 56,000. Comparing 1913 with 1914 maintenance of way expenditures decreased 11 per cent and gross earnings 1 per cent, while the charges for maintenance of equipment remained

stationary, although the number of cars in the shops increased almost 36,000.

Since it is to be assumed that the same policy of retrenchment is being followed in the mechanical as in the maintenance of way and other departments, as in fact is shown by the accumulation of bad order cars, it is evident that it would require an even greater expenditure to maintain the equipment in its normal condition.

It is entirely reasonable to assume that there is some definite relation between this *increase* in the expenditures for maintenance of equipment and the *decrease* in charges for maintenance of way. Although many items entering into the cost of maintaining equipment, such as the painting of cars, are entirely independent of the condition of the track, other items, such as the cost of locomotive maintenance, the repair of broken trucks, etc., are dependent to a certain extent upon the condition of the track.

Railway managements can well afford to analyze their maintenance of equipment charges to ascertain to what extent these fluctuate with the condition of the track. Such a study may show that severe retrenchments in expenditures for maintenance of way do not secure even an immediate economy, owing to their effect upon other accounts, and that it might be more economical to make reductions in expenditures in other departments. Such a study would be most instructive if made at a time like the present, following an extended period of retrenchment.

## THE SITUATION IN NEW ENGLAND

PEOPLE often speak of the "railway situation." There are really several "railway situations" in this country. The railways naturally divide into groups, and the conditions with which they are confronted vary from group to group.

One of the most complex, puzzling and difficult situations is that in New England. The roads formerly comprising the New Haven system, the principal of which, of course, are the New York, New Haven & Hartford and the Boston & Maine, were in some ways badly mismanaged during the regime of Charles S. Mellen. The worst feature of his administration was the abuse of the road's credit. The management of the operating and traffic departments was generally efficient; but the use made of their financial resources was unwise and even scandalous. There is a lesson here for stockholders in railways generally. This is, that it is most unsafe to turn over the running of their business to a board of directors, and then pay no attention for years to what the directors do. The stockholders have their responsibility for what happened in New England as well as the directors and Mr. Mellen.

However, the stockholders, the directors and Mr. Mellen are all paying pretty dearly for their parts in the business. Mr. Mellen has been retired in disgrace. The directors have been denounced and are being prosecuted for many things they did and for some things they did not do. The stockholders are paying for their more or less guilty quiescence and acquiescence through the loss of their dividends.

But, though justice may require that the stockholders shall suffer for what the managers of their properties did, it does not impoes on them also the penalties for developments for which neither they nor the managers were in any way responsible. And, as a matter of fact, the present position of the New Haven and the Boston & Maine, while largely attributable to the faults of the Mellen regime, is also largely due to the peculiar conditions in New England, and to a series of developments which have affected all the railways of the United States, but which, because of the conditions in New England, have affected the railways in that section with special force.

One respect in which New England differs from practically all the rest of the country is that its population and industry have reached a stage of development comparable to that reached in the leading countries of Europe. Because population and industry have reached this stage there they do not grow as fast in proportion as in most other parts of this country. It results, of course, that railway traffic, and especially freight traffic, does not grow as fast in proportion as in other territories. Furthermore, the traffic of the New England lines is of a character unique in the United States. The proportion of high-grade to low-grade freight is much greater than in other sections, and the ratio of passenger to freight traffic is also much greater.

Now, every one of these conditions renders it especially difficult to make physical improvements in railways except at great cost, or to introduce economies in operation. In a territory where the population is so dense, where towns and cities are so close together, the real estate is extremely valuable, and the cost of acquiring the property needed to enable a railway to expand its facilities is especially great. Furthermore, a traffic which grows relatively slowly, and which is composed to so very large an extent of high-grade freight and passengers, does not yield readily to those methods for increasing carloads and trainloads which are the most effective means—where they can be adopted—of bringing about operating economies. For these and other reasons the difficulties in the way of making physical improvements and economies in operation on the railways in New England have been in the past, are now, and will be in the future, greater in proportion than those encountered in other parts of the country. Whatever tends to make necessary increases in capital investment or in taxes, in the wages of employees or the prices of material, must, therefore, increase both the capital cost and the operating cost of handling each unit of traffic more in proportion in New England than elsewhere.

Now, the New England lines have not been and will not be immune from those influences which render it necessary for the railways to increase their property investment in order to handle their business satisfactorily or from those which cause large increases in wages, taxes, and so on. President Hustis of the Boston & Maine, in a statement before the Public Service Commission of Massachusetts on January 6, said that during the five years 1910-1914, inclusive, $3,000,000 was spent on this property for betterments and charged to operating expenses; and he estimated that during the next five years $16,000,000 should be spent for necessary improvements. He also stated that between 1901 and 1914 the operating expenses of the road had been increased $5,000,000 a year by increase in wages.

These figures illustrate the trend of things, not only on the Boston & Maine, but on the New Haven, the Boston & Albany and other lines in New England. They must make investments in improvements; they must meet increases in wages and taxes as the other railways of the country must; but, for reasons already indicated, their physical conditions are such that they cannot offset the increases in expenses by the introduction of more economical methods to the same extent as most of the other railways of the country can.

But the very same conditions in New England which make it very difficult to introduce extensive economies in railway operation also make it imperative that that section shall have good railway service; for, of course, the larger the extent to which the traffic of a section is composed of high grade freight and passengers, the more imperative is it that every practicable measure shall be adopted to put and maintain its railway service on the highest plane. Furthermore, if New England's factories, which are the very foundation of her prosperity, are to continue to live and meet the competition of the factories of other parts of this country and of the world, good railway service they absolutely must have. All the conditions have conspired to make necessary important readjustments and increases in rates.

The people of New England and their railroad commissions have, in the main, shown a remarkable appreciation of the situation confronting them. The New Haven scandal was enough to disgust and enrage any intelligent community. But as soon as the New Haven and the Boston & Maine were turned over to new managements, and the new managers began to take the

public into their confidence, the people and most of the commissions began to give them a sympathetic hearing and hearty support. Plans have been worked out and accepted for general readjustments of both freight and passenger rates. But, as often occurs in such matters, a snag has been struck. The Massachusetts commission has held up an advance in passenger rates in that state which has been allowed in other states. If the advance were disallowed in the state of Massachusetts this might interfere with advances in all the other New England states.

It is to be hoped that the public and regulating authorities of New England will continue to take an intelligent and sensible view of the situation with which they and the railways are confronted. Doubtless the investors in the railroads should pay for the mistakes made and offenses committed by the old management of the New Haven. But the old management is gone. The New Haven and the Boston & Maine are now in the hands of men who deserve and should receive the unqualified confidence and support of the public. New England wants and needs good transportation more than almost anything else. The new managements of the New Haven and the Boston & Maine want to give this, and they are competent to do so if properly supported by the public which they serve. But they cannot do for New England what New England wants them to do for it unless New England backs them up.

New England is confronted, not with a theory of abstract equity, but with a condition of industry which presents a problem of the hardest and most practical kind. It may be that still other advances in rates besides those already asked and granted will have to be made in order to put its transportation system in the condition that it ought to be in. It will pay New England to inform itself fully as to the facts, and then to act accordingly. New England's future depends on this.

## NEW BOOKS

*Poor's Manual of Railroads for* 1915. Published by Poor's Railroad Manual Company, 535 Pearl street, New York. 2,046 pages.

The 1915 Poor's Manual of Railroads is the forty-eighth number of this standard compilation of railroad statistics. It contains abstracts from the statements of all of the 1914 annual reports which have been issued, and the general information contained in it is revised to December, 1914. Poor's Manual has had an enviable reputation for accuracy for nearly half a century and in the last few years more effort has been put into getting it out as soon after the close of the year as is possible. The 1915 number is gotten out earlier in the year than any previous number. The Manual is, of course, an indispensable part of all statistical libraries and if a railroad executive officer were to have only one book in his library that book ought to be Poor's Manual.

*Brass Furnace Practice in the United States.* By H. W. Gillett. 287 pages, illustrated, 5¾ in. by 9 in. Bound in paper. Published as bulletin No. 73 of the Department of the Interior, Bureau of Mines, Washington, D. C.

This bulletin is issued as a contribution to the increase of safety and efficiency in the preparation and utilization of the mineral resources of the United States. The object of the investigation of brass furnace practice was to find out the melting and fuel losses in brass melting as practiced at present and to indicate as far as possible the methods by which the losses may be reduced. The investigation deals with the general types of furnaces in use and gives the result of the investigation in detail. General factors affecting the operation of brass furnaces are carefully considered and considerable space is devoted to remarks on furnace types and parts. Possible improvements in furnaces and accessories are discussed as well as some furnace problems which are awaiting solution. The latter part of the book is devoted to various causes of disease and danger and essentials for health and safety.

# Letters to the Editor

### OPPORTUNITIES FOR TRAIN DESPATCHERS

WARREN, Ark.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Referring to C. L. J.'s article in the issue of January 15, asking why chief despatchers do not receive more recognition, I would like to say that I believe I am making a low estimate when I say that 75 per cent of the presidents, general managers, general superintendents, superintendents and trainmasters on the railroads of this country were once chief despatchers. If I am right, where is there any cause for complaint?

W. S. HOBBS,
General Manager, Warren & Ouachita Valley Railway.

[Certainly, a very large percentage of railroad operating officers gained their early experience in the telegraph and despatching service. The following is a list picked out at random of the names of 25 prominent railroad officers who have been despatchers: F. C. Batchelder, president, Baltimore & Ohio Chicago Terminal; H. A. Boomer, general manager, Lake Erie & Western; S. M. Braden, general superintendent, Chicago & North Western; F. H. Britton, president, St. Louis Southwestern; D. L. Bush, vice-president, Chicago, Milwaukee & St. Paul; E. E. Calvin, vice-president and general manager, Oregon Short Line; E. H. Coapman, vice-president and general manager, Southern; W. S. Cooper, general superintendent, Chicago, Milwaukee & St. Paul; H. O. Dunkle, general manager, Erie; A. J. Earling, president, Chicago, Milwaukee & St. Paul; H. B. Earling, vice-president, Chicago, Milwaukee & St. Paul; J. A. Edson, president, Kansas City Southern; T. J. Foley, general manager, Illinois Central; F. C. Fox, general manager, Atchison, Topeka & Santa Fe; W. A. Gardner, president, Chicago & North Western; Marvin Hughitt, chairman, Chicago & North Western; C. W. Kouns, general manager, Atchison, Topeka & Santa Fe; D. C. Moon, general manager, New York Central; H. U. Mudge, president, Chicago, Rock Island & Pacific; G. L. Peck, fourth vice-president, Pennsylvania Lines; W. B. Scott, president, Sunset-Central Lines; Milton H. Smith, president, Louisville & Nashville; W. S. Tinsman, chairman, General Managers' Association of Chicago; J. J. Turner, vice-president, Pennsylvania Lines; Frank Walters, general manager, Chicago & North Western.—EDITOR.]

### A PRACTICAL CAR POOLING PLAN

HOUSTON, Tex.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have read J. S. Marvin's article entitled "Shipper Advocates Car Pooling," which appeared in the January 1 issue of the *Railway Age Gazette.* It is a thoughtful article, and the ideas advanced are clearly brought out. It is probably true that generally speaking Mr. Marvin has accurately stated the shippers' point of view the country over in this matter of car handling, and it occurs to me that the carriers owe it to the shippers to state at this time what has been done recently to meet their views in a concrete way.

On October 1 of the year just closed, the roads comprising what is known as the Sunset-Central Lines have, by written agreement, permitted their cars to be used in common by a direct connection, which is in keen competition with the Sunset-Central Lines. The road which has been given this permission has, in turn, extended to the Sunset-Central Lines, a like privilege. Under the terms of the agreement, the provisions of the car service rules of the American Railway Association, which rules are pointed out by Mr. Marvin as imperfect both in times of car surplus and of car shortage, are waived. Both parties to this agreement were prompted to act in the matter in a de-

sire to please their patrons, and in the hope of decreasing operating expenses. For fear it might not work out satisfactorily, the public has not been informed of the experiment. Knowing as we do how directly concerned the shipping public is in any move of this kind, and knowing also how anxious the public is that the carriers shall make progress in the matter, we should perhaps have made this experiment public from the outset. Even if it had not worked out well, the public would at least have known that an active effort was being made.

For the further encouragement of those who feel that "the shipping public is entitled to have the railroads make a definite start," I will state that on the very day the January 1 issue of the *Age Gazette* reached us, our people executed a formal agreement with another direct connection, which also is an active competitor, whereby cars of that line and of the Sunset-Central Lines will be used in common by both parties to the agreement.

It will be of further interest to know that in waiving the provisions of the car service rules of the American Railway Association, which is done in arranging the pooling plan, both parties are guarding against any unfairness on the part of either.

It is not an unregulated car pool, such as exists all too generally.

A copy of the agreement follows, and there is no reason why the public should not be made entirely familiar with its contents.

CAR EQUALIZATION AGREEMENT

Each subscriber to this agreement may use as its own, box, stock, flat and coal cars of each other subscriber, the initials of which hereinafter appear and are made a part of this agreement. Such cars may be loaded in any direction, without regard to the Car Service Rules, and without incurring penalty under Per Diem Rule 19 of the American Railway Association.

A subscriber may include, as its own, cars which do not bear its initials by filing with the other subscribers the authority of the owning road.

Each subscriber shall undertake to supply an equal number of cars under this agreement. When a subscriber has provided an excess of cars, equal to 10 per cent more than another subscriber, the creditor subscriber may make written demand upon the transportation officer in charge of car distribution of the debtor subscriber for an equalization within seven days.

The debtor subscriber may equalize by delivering to the creditor subscriber the requisite number of

(a) Creditor subscriber's cars, or

(b) Debtor subscriber's serviceable cars.

It is agreed that the Sunset-Central Lines will, upon demand made by the S. A. & A. P., return within seven days to the S. A. & A. P. as many S. A. & A. P. special fruit and vegetable cars needed for loading fruit or vegetables, which may be in the possession of the Sunset-Central Lines, as may be called for by the S. A. & A. P.

Failing to equalize within the prescribed period, the debtor subscriber shall pay to the creditor subscriber $2 per car per day for the excess number of cars then or thereafter in the possession of the debtor subscriber, commencing after midnight of the sixth day following date of written demand, and continuing until equalization is made. This rate shall be in addition to the regular per diem rate.

If the records of the creditor and debtor subscribers differ as to the number of cars necessary to the equalization, it shall be made on the basis of the average of the statements of the two subscribing roads. Payment shall be made within thirty days after the close of each month, based on actual figures ascertained by joint check.

This agreement shall become effective January 1, 1915. It may be terminated upon thirty days' advance notice in writing, served by the subscriber desiring to terminate the agreement, upon the subscriber with which the agreement is to be terminated.

Misunderstandings, which cannot be promptly settled, shall be referred to the Per Diem Rules Arbitration Committee or the American Railway Association, as provided in the case of disputes under the regular per diem rules.

The essential difference between the plan described, which we hope will eventually bring substantial relief to shippers as well as to carriers, is that the car owner is at all times assured of a square deal; in other words, is protected by an iron-clad agreement.

And this move to afford shippers substantial relief in car handling is not confined to Texas, even though it has chanced to take more concrete form here than elsewhere. An advance sheet from the minutes of the Association of Transportation and Car Accounting Officers, just at hand, which association is composed of representatives of railroads of the United States and Canada, shows that at the regular fall meeting held in Richmond, Va., on December 8, 1914, the matter was discussed fully, both from the standpoint of the car pooling plan, already started, and from the standpoint of creating "conference committees," some half dozen all told, to cover the various sections of America, to promote improvements in car handling. It is understood the conference committee plan has been passed to the American Railway Association within the last few days.

It is obvious, therefore, that real progress is now being made, and it is gratifying to find how fully it meets the views of the shippers. Possibly it will be found expedient to expand the conference committee idea to include the representatives of shippers. At any rate the carriers realize the public's intense interest in such matters, and are trying to meet their view. It is barely possible that the public has, in a way, mistaken the silence of the carriers as an evidence of indifference. The carriers are extremely anxious to make progress, and it is a little unfortunate that they have not advertised their attempts to improve this phase of the service, even though the attempts have not been particularly fruitful, except possibly within the last few months.

F. M. LUCORE,
Assistant General Manager, Sunset-Central Lines.

## LEGISLATION AND RAILWAY DEVELOPMENT

GLOBE, Ariz.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

After serving for over twenty years as a railroad employee in the mechanical, accounting, engineering, construction and transportation departments, I have been engaged for the last three years by a civic organization composed of the taxpayers of Gila county. Among the duties required of me is that of making annual inspections of the various industries throughout the county, which contains 4,525 sq. mi. of mineral, grazing, agricultural and timber lands; and no better illustration can be given of the railroad situation today than this county presents.

The resources of Gila county can best be judged by a comparison of the assessed valuation in 1911 and 1914. This figure in 1911 was $6,900,000, and in three years had increased to $36,300,000. During this period, however, there was scarcely ten miles of railroad built in the county. This is not alone applicable to Gila county, but to the entire state of Arizona with an area of over 113,000 sq. mi. and an assessed valuation of over $411,000,000. In the last two years there has been less than 20 miles of railroad constructed in the state, and the sole cause is attributed to federal and state legislation unfriendly to the railroads.

There are thousands of acres of the finest tillable land in Gila county that is now being used for stock raising, which if it were reached by railroad facilities would afford homes for hundreds of families. Our state laws have made it almost prohibitory to operate the few miles of railroads within the county, and there is therefore no incentive to railroad capital to construct further mileage. Until the rank and file of the electorate of Arizona are educated to their own best interests and give the railroads a square deal, we have no hope for any further railroad construction in this state.

I certainly believe the time has arrived when the country should adopt a more liberal attitude toward railroads, and in fact in the new western states all encouragement possible should be given to the railroad capitalist in order that our large, sparsely settled areas can be settled, and our wonderfully rich mineral wealth can be developed.

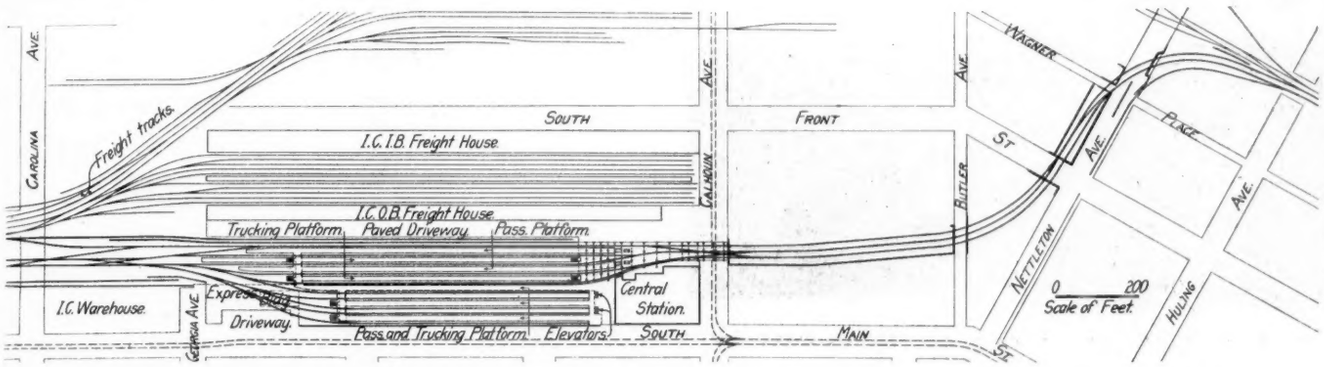
W. H. KEEGAN,
Secretary, Globe (Ariz.) Chamber of Commerce.

DUTCH RAILROADS AID RELIEF WORK.—The representatives of the American Commission for relief in Belgium at Rotterdam report that the Dutch government has given the commission permission, when the canals are frozen to send by rail, for which they will make no charge, the full quantity of supplies needed, amounting to 3,000 tons daily. In addition, it has refunded the amounts previously paid by the commission for freight sent over the railroad.

# New I. C. Station and Track Elevation at Memphis

## Passenger Terminal for Four Railways and Elimination of Six Grade Crossings Have Cost Over $1,400,000

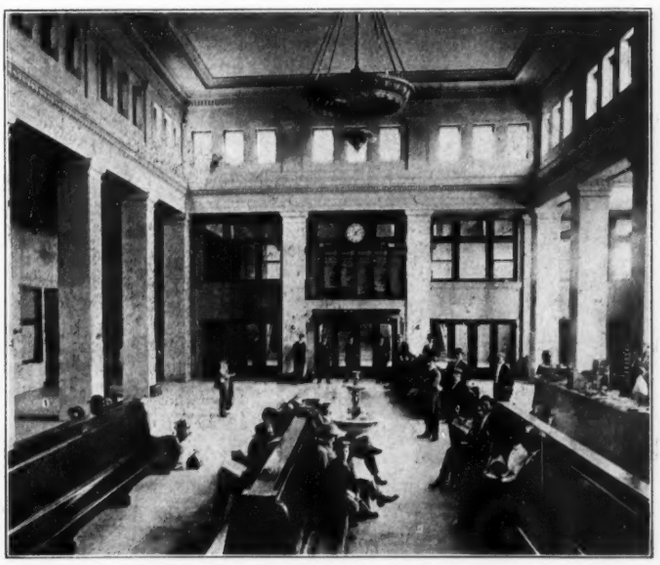
An important passenger terminal improvement has recently been completed by the Illinois Central at Memphis, Tenn., including the construction of a new central station and office building and the elevation of about ¾ of a mile of line, part of which is on a new location. The Illinois Central has maintained two stations for its trains and those of its subsidiary, the Yazoo & Mississippi Valley, one located at Poplar street, near the river front, just north of the main business section of the city, and the other at Calhoun street, about one mile south, the latter being used also by the St. Louis & San Francisco and the Chicago, Rock Island & Pacific. Under the old arrangement, engines were changed on through trains and all breaking up was handled at the Poplar street station, only a passenger stop being made at Calhoun street. The Y. & M. V. trains, all of which terminate at Memphis, ran through to Popular street. Since the completion of the new station, which replaces the old one at Calhoun and Main streets, all switching of cars and changing of engines are handled at the new station, the Y. & M. V. trains terminate there, and I. C. trains only make a passenger stop at Poplar street. All Rock Island trains terminate there, as well as a portion of the trains of the Frisco, and those of the latter road which pass through Memphis, make a reverse movement, entering and leaving the south end of the terminal. The combined traffic of the four roads amounts to about 45 trains per day, of which more than two-thirds terminate there. The old line from Calhoun street north to a connection with the freight line at Huling avenue was a single track and crossed all streets at grade, while the new line has three tracks part of the way and two tracks for the remainder, elevated above the streets. Just south of the station the Rock Island and the Frisco connect by wyes with the east and west line of the latter road.




**Location of New Illinois Central Line Through Memphis, Tenn., Reaching New Central Station at Calhoun Street**

In order to handle traffic during construction work a temporary station was built west of the old one, fronting on Calhoun street. The old baggage facilities were used for a time, but later new temporary quarters for baggage were provided south of the temporary station and west of the old building. The old station was then demolished and the new one started. The west wall to support the new fill on which the station tracks were to be laid was built first, then the tracks were brought up to the new level in stages, always keeping a sufficient number of tracks open for service. At times during

**New Central Station and Office Building Recently Completed by Illinois Central in Memphis, Tenn.**



**Main Concourse of the New Memphis Station, Looking Toward Train Concourse**

the work some of the operated tracks were on the upper level and some on the lower. Temporary platforms and sheds were built on the new grade in the position of the permanent ones and will be used during the life of the timber.

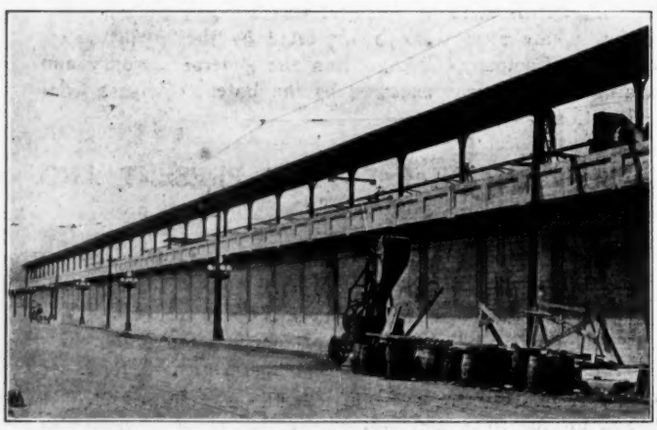
STATION BUILDING

The new building is rectangular in shape, 208 ft. by 141 ft., exclusive of the express quarters. The first two floors are occupied by the public rooms, the third, covering only a portion of the total area along the two street faces, is occupied by offices, as are the five floors above this, which cover only the Main street side of the building. Structurally, the building is

**The Station Tracks and Train Sheds from the Top of the New Station**

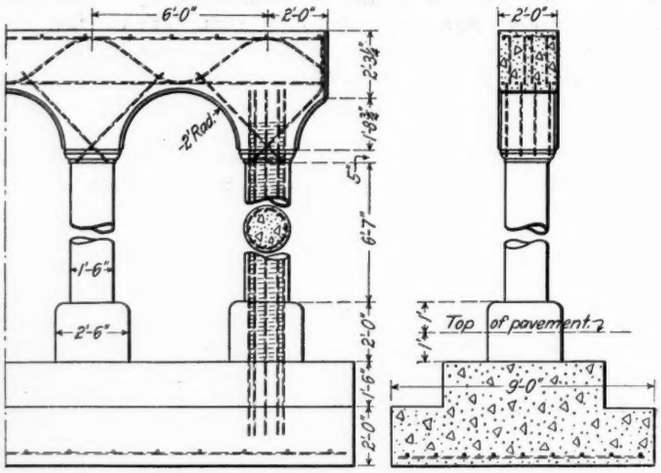
a steel frame with Bedford stone walls up to the fourth floor and brick trimmed with stone and terra cotta above that level. The face of the third story is treated as a broad frieze, supported by a colonnade of fluted pillars extending the full length of the street faces of the building. The upper stories are severely plain in treatment, but this effect is relieved by the rich cornice and parapet which surmount the office building.

Two main entrances are provided, one for white passengers from Main street and the other for colored passengers from Calhoun street. A cab entrance on the west side of the building is reached from Calhoun street. The lobbies just inside each



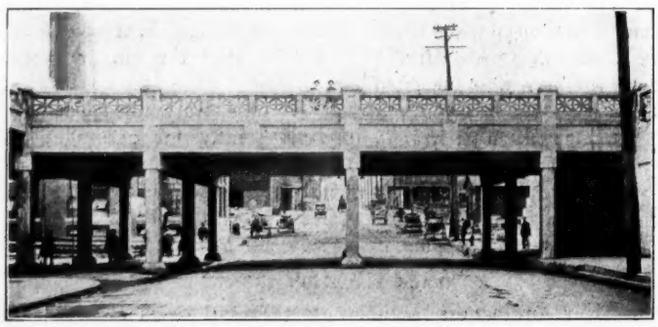
**Cantilevered Retaining Wall Along Main Street Adjacent to the New Station**

entrance connect directly with the white and colored ticket lobbies, separate baggage-checking counters and separate lunch rooms. These lobbies are finished with mosaic tile floors, Tennessee marble wainscot, plaster walls and ceilings. The main waiting room is located on an intermediate level between the ground floor and the track level. Stairways leading up from the respective entrance lobbies provide easy access to this room from opposite sides. The main concourse is 75 ft. by 100 ft., and the roof, which is carried on steel trusses, is 35 ft. above the floor. The finish is practically the same as that on the lower floor. A portion of this room along the west side is railed off to form a passage for colored passengers from the main stairway to the passenger concourse, which extends across the south end of the waiting room and can be entered directly from the main waiting room by white passengers. A broad




**Details of Reinforced Concrete Columns and Arched Girders Used in Front Street Viaduct**

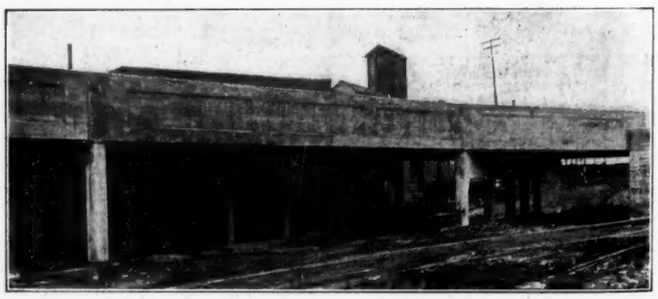
stairway leads from this concourse up to the track level, providing direct access to the platforms between the stub tracks and a passageway extends from the passenger concourse under the through tracks west of the building to stairways which



**The Calhoun Street Subway Adjacent to the New Station**

lead up to platforms between these tracks. A separate exit to Main street opens from the east end of the passenger concourse and another exit is provided along the west side of the building leading down to the cabstand.

Three general waiting rooms fitted with seats adjoin the



**The Steel Encased Structure Carrying the Tracks Over Nettleton Avenue and Wagner Place**

main concourse and are reached from it by short flights of stairs. These rooms are assigned to white, colored and immigrant passengers and have a combined seating capacity of about 400. The usual toilets, rest rooms and smoking rooms are con-

nected with these waiting rooms. The equipment of the station includes 15 clocks on the two lower floors and about 20 more on the office floors, controlled by a master clock, wiring for 48 Musalophones for train announcing, and eight telautograph stations.

The first office floor has an area of about 15,000 sq. ft., and the five floors above that about 7,000 sq. ft. each. The building is designed to allow the extension of the upper stories over the Calhoun street wing if the added space is needed. Two stairways and two Standard Plunger Company's elevators provide access to the office floors.

The baggage and mail facilities are located on the ground floor of the main station building and the express companies occupy quarters in a separate building at the south end of the train shed facing on Main street and Georgia avenue. The old express building, which occupied a similar location, was moved out into the space to be used for a drive in the new layout and was continued in service during the construction of the new building. This building is one story in height and about one-third of it is located under the station tracks. It has a concrete foundation, a concrete floor, steel columns, brick walls on the street faces and wall-bearing beams supporting a concrete slab roof. The north and west walls of the building are of concrete, serving also as retaining walls for the fill under the station tracks. A trucking tunnel of reinforced concrete, 16 ft. wide and 12 ft. high, extends from the baggage room to the express building under the tracks, connecting with two cross tunnels, one near each end of the station platforms. Baggage, mail and express matter can be brought through these tunnels to seven hydraulic elevators which raise it to any desired platform, thereby eliminating most of the trucking at the track level. The pressure pumps for these elevators and other equipment needed for the station plant are located in a power house across the tracks from the station, the pipes and conduits being carried to the station in a tunnel under the tracks.

The station track layout consists of nine tracks used exclusively for passenger trains and one jointly for passenger and freight. Five of these are stub and five are through tracks. The umbrella sheds are supported on pedestals set on creosoted piles driven in the fill. The tracks are laid with 90-lb. A. R. A. type A rails, creosoted pine ties, and rock ballast.

### TRACK ELEVATION

Under the ordinances authorizing this improvement, four streets were closed and six carried under the new tracks in subways. The railway paid the entire cost of this work, in addition to that of the station, including damages, changes to mains, street conduits, etc., aggregating more than $1,400,000, exclusive of property. The track elevation required the handling of about 165,000 cu. yd. of embankment, the placing of 30,000 cu. yd. of concrete in retaining walls and subways, the driving of about 1,500 creosoted piles and the laying of 10,000 sq. yd. of paving. The average raise in grade was between 10 and 15 ft., giving a clearance of 12 ft. at streets, except at Calhoun street, where 14 ft. headroom was provided. Where the right of way was limited, retaining walls were built to contain the fill, these being of gravity section where space for a toe was available, and of the counterfort reinforced type where the space necessary for the former design was lacking. A cantilever wall with a four-foot overhang was built along Main street between the station building and the express building.

The subways are not uniform in design, owing to the varying conditions at the different streets, but include no essential features that differ from those commonly adopted. In general, supports are provided at the curbs and in the centers of the streets. When the spans were short enough to make a reinforced concrete deck economical, slabs were used. In some cases these were cast in a yard and handled into place by a derrick car and a wrecker, and in a number of cases the slabs were cast in place. The heaviest slab handled weighed about 65 tons. Where concrete slabs were not feasible, I-beam decks encased in concrete were adopted, placed transversely and supported on through girders where the length of span required. Reinforced concrete columns and cross girders were used for two of the bridges and built-up steel columns and cross girders encased in concrete for the other subways. Spread footings in sandy clay were obtained in most cases, although at Calhoun street, piling was driven under the pedestals. Little depression of the streets was required, except at Carolina street, where the grade was lowered about 12 ft., with approaches of four per cent. This necessitated the underpinning of the Illinois Central warehouse on the north side of this street, just east of the tracks, and the cutting of new doors through the basement walls at the new street level.

The details of the circular reinforced concrete columns and the arch girders used at Front street, illustrated in the accompanying drawing, are among the most interesting features of the bridge work. These columns and girders were cast in Blaw steel forms purchased by the railway company and turned over to the contractor during the time the work was in progress. Another minor feature of interest is the type of base casting used to support the pipe railings along the parapets of subways and on retaining walls in order to bring the center line of these railings out to the face of the concrete and thereby increase the clearance alongside the track. These castings are secured by bolts extending into the concrete through horizontal and vertical projections. After the railing was lined up the castings were grouted in place through a hole left for that purpose. A reinforced concrete balustrade of ornamental design was placed on the Calhoun street subway. The posts were cast in place, the mullions and panels were cast in a yard and set in place, after which the top rail was cast over the assembled parts.

The entire improvement in Memphis was carried out under the direction of A. S. Baldwin, chief engineer of the Illinois Central, and F. L. Thompson, assistant chief engineer. The bridge designs were prepared under the supervision of Maro Johnson, engineer of bridges and buildings, and the construction work in the field was in charge of F. R. Judd, assistant engineer. The design for the station was prepared by Graham, Burnham & Co., architects, Chicago. The contract for the building was handled by the Alexander Construction Company, Memphis, and George B. Swift & Co., Chicago, built the power house and express building. The fill was made by railway company forces, the steel work was erected by the Strobel Steel Construction Company, Chicago, and the general masonry and excavating contract was executed by the Bates & Rogers Construction Company, Chicago.

## THE SUPERINTENDENT—PAST, PRESENT AND FUTURE*

BY E. H. DEGROOT, JR.
Superintendent Transportation, Chicago & Eastern Illinois

The superintendent of the past looms large in the history of the American railroad. He was a pioneer, and if his chips seem crude in comparison with the shavings of today, let us not forget that, figuratively speaking, the axe and the adze were the tools for his work and that he can neither be judged with fairness nor properly appreciated other than in the setting of his own day.

The country was new, the roads short, poorly constructed and meagerly equipped, the methods experimental. Each little line was being developed according to the ideas of its own management, with scant regard for what was being done by its neighbors. Co-operation was an unheard of theory and there were no associations like this for the exchange of ideas. There was no attempt at uniformity, even in signal codes, and men changing employment were not infrequently expected to ascribe to hand and lantern movements, and ball and target displays, meanings

*An address delivered before the American Association of Railroad Superintendents, New York City, August 21.

diametrically opposed to those with which they were familiar. Writing of this condition in 1878, Kirkman, in his Railway Service: Trains and Stations, the modest forerunner of his excellent series, The Science of Railways, says, "Are any of these disasters brought about by an improper understanding of the meaning of particular signals, or by employees getting the rules and regulations of different companies confounded? Who can tell? The lamp raised and lowered upon one road says back up; upon a parallel line, not ten feet away, it may, and very likely does, mean, go ahead." And commenting on the joint use of a track by two companies whose rules were different, making it necessary for the trains of the tenant line to be governed by the rules and signals of the owning road, he writes, "These employees must, therefore, at a particular place, be it day or night, lay aside the rules and regulations that they are familiar with by study and practical use, and adopt in their stead other rules dissimilar in form and application."

The little volume from which these quotations are made was given to me by my father who bought it many years ago. As a boy, I read it with eagerness, long before I had come into contact with the genus superintendent, and I am sure that you will pardon me for this personal reference when I add that this book was largely responsible for the awe with which I regarded that official during the first years of my own service. You will scarcely wonder at this when I quote from Chapter One, for example: "They (the employees) know that there is hidden away somewhere in the dark unoccupied recesses of the superintendent's apartments, a mysterious chart, whereon at intervals he works. They have had surreptitious glimpses of this wonderful chart through partly closed doors, but their view has been obstructed and their mental processes deadened by the form and austere presence of the superintendent, as he paced the room with measured stride, or bent over his work, pencil in hand, with absent air and corrugated brow, like one who sought in vain for the solution of some difficult problem," etc. Truly, to have been a superintendent in those days must have been worth while!

As has been suggested, the superintendent of the past was largely isolated. Frequently, his superior, the president, was not versed in operating matters, and there is evidence that the operating officer was quite generally left to work out his own salvation. Byers mentions this in the preface to his Economics of Railway Operation, where he says, "The railroads were small, the traffic was not dense, and the official in charge headed his forces in much the same manner as King Henry of Navarre at the celebrated Battle of Ivry."

It was, then, the superintendent's business to operate, and operate he did with a courage and a fervor which compel admiration. It is not strange that under these conditions he was autocratic, or that he had scant patience with those changes which have come with recent years.

And now he is no more! To me the tragedy of railroad development lies in the fact that so many of these men who had builded well in the past were unable to adapt themselves to the world of today. Their labors and those of their predecessors form the foundation upon which has risen the superstructure of our present day operating organization. All honor to the superintendent—past! Verily there were giants in those days. It is, however, with the superintendent of the present that we are chiefly concerned. His problems are ours and they are before us for solution. The small roads have been united in larger units and systems—competition is keen—the demands for economy becoming more and more insistent and the work of the superintendent correspondingly exacting. The extensive work of the pioneer has given place to intensive development. Standards are higher, more is expected, a wider outlook required; the question of the limits of true economy is still pressing for an answer. Well has Major Hine put it in one of his letters, "You can never get beyond watching the company's dollars and cents, any more than a successful musician can omit practice."

Then, too, the public relations of the railroad are at last receiving some of the attention which, if given a few years ago, might have prevented much of the flood of vindictiveness which has been so costly to both railroads and people. As Morris strikingly says in his Railroad Administration, "There cannot be the smallest doubt that a persistent condition which may be described as corporate bad manners was in large measure responsible for the exceedingly bitter attack upon railroads which characterized the so-called Granger period in the seventies, and more recently, in Roosevelt's administration." Then he adds, "General harmony, from day to day, is best promoted by the watchfulness of division officers, and they are sure to be watchful if the president and general manager really want them to be."

Watchfulness, however, to be effective must be intelligent watchfulness, active as well as passive, and there is much error abroad concerning railroads which all railroad men should understand and refute. With this in mind I want to recommend two books which I believe every superintendent should read carefully. These are, Dunn's American Transportation Question, which treats of rates, service and financial return as three vital and related factors, and his Government Ownership of Railroads, the title of which is self-explanatory. These books are comprehensive without being too lengthy for the busy man and will provide reliable ammunition for the needed campaigns of education.

With all these and other important matters claiming his attention, it will be clear that the superintendent can no longer head his forces after the manner of King Henry. He must work through an organization whether he wants to or not. This is especially true under the divisional plan which makes him responsible for maintenance of equipment and maintenance of way results, as well as for those of transportation.

The superintendent, then, must select men, train them, vest them with authority commensurate with their responsibility, and supervise their work. This requires time and the exercise of good horse sense, applied psychology, knowledge of men. Call it what you will; when your boy comes home from school talking about $H_2O$, and you tell him to try a little on his hands and face, you are both talking about water. And, by the way, the efficiency of an organization is more often limited by failure to delegate adequate authority, than by the granting of too much. Further, supervision and meddling are not synonymous.

But the superintendent must not only be an organizer; he must be a diplomat, too; a diplomat of the American type, fairminded and direct, a man of convictions and with the courage thereof, but withal considerate of others both employees and public. So much for the superintendent of the present. He is, perhaps, too close at hand for an accurate estimate of his contribution to railroad development, although we know that that contribution is a substantial one.

And now just a word as to the superintendent of the future. He will, of course, like his predecessors, be a logical answer to the transportation requirements of his times, and a survey of the past and present for prophetic purposes discloses a trend toward what we hope will prove to be more wholesome economic conditions as well as the development of railroad operating practices along scientific lines. The superintendent now has, and will have in greater measure hereafter, a generous share in bringing about and maintaining better public relations and an enviable opportunity to work out important operating betterments. Unless all signs fail, costs are destined to play an important part in the work of the very near future and the superintendent who is wise will, in bulletin language, be governed accordingly.

What kind of men will our successors be? High grade, without doubt. They will build on the cumulative results of both past and present, and, like the men who precede them, will be clean, competent and confident—a fine type of American citizenship, contributing their share toward the common weal of our beloved country.

# Government Regulation of Railway Operation*

## To Be Successful Regulation Must Be Carried on in a Broad Spirit of Cooperation with the Railways

By Samuel O. Dunn

It is, to regulation of what we ordinarily understand as operation, namely, the construction, equipping and maintaining of railways and the moving of their engines, cars and trains that I shall confine myself.

There are some phases of this subject which it would be a waste of time to discuss. It would be a waste of time to discuss whether the government has power to regulate operation. It has been settled by the courts that both the states and the nation have that power. It would be a waste of time to discuss whether there should be some regulation of operation. There is already much of it, and everyone agrees that, so long as the railways are owned by private companies, there always will be and always ought to be a good deal of it. In fact, it is one of the advantages of private ownership that under it the government can regulate the management of railways, and one of the disadvantages of public ownership that under it the government cannot do so, simply because under public ownership the government is the manager. The large questions as respects regulation of operation which remain to be settled are, what its purposes should be, how comprehensive its scope should be, what form it should take, and by whom the regulating should be done.

A good many people have done little else for some years but evolve theoretically complete and perfect schemes for the regulation not only of railway operation, but of all parts of the business of all kinds of public service corporations; and the less experience they have had in connection with the business of such concerns the more assurance they have shown in setting forth how they should be regulated. We shall never get very far by following such people. A satisfactory and helpful policy of regulation can be developed only by a painstaking study of the conditions to be dealt with by both railway officers and regulating authorities, and by co-operation between them in cautiously trying out regulatory measures until experience shall show what ought to be done and what ought not to be done, what can be done and what cannot be done. But frank discussion of the problem may, at least, tend to help bring about the needed study of the conditions and the needed co-operation between railway officers and the regulating authorities; and, therefore, frank discussion may do good, even though those participating in it may, as I do, express their views with many inward questionings and with the reservation of the privilege of changing them if they are shown to be wrong.

### Some Shortcomings of Railway Plants and Service

The great requisites of good railway service are reliability, conveniency, comfort and safety. Our railway service has many shortcomings as respects all these matters. This is not saying that it is all bad; that it is worse than that of other railways; or that its shortcomings are due to any particular class or classes of persons. The service of some of our railways is better than that of others; in many respects our service is better than that of any other railways; and many of the shortcomings which it has are due to the special conditions under which it has been developed and is carried on. But after all, it must be conceded that we have much poor track, much defective equipment, many lines that are without block systems, many whose trackage, terminals and equipment are not adequate in normal times to the demands of their business, numerous unprotected grade crossings, many employees who have not been properly trained and disciplined or on whom training and discipline have been lost. In consequence, we have many trains that ride uncomfortably, many that are late, congestions and delays to traffic when business is good, and an accident record that is discreditable. This is but an incomplete enumeration of our railways' shortcomings of plant, personnel and service. It is desirable from the standpoint of all that these things shall be improved. If government regulation will help improve them, then government regulation is desirable. But if government regulation is to do this it must courageously and effectively attack the primary causes of the unsatisfactory conditions. What, then, are some of these primary causes, and how may the government effectively attack them?

### Causes of Unsatisfactory Railway Conditions

The primary causes of the defects of plants and service are numerous and various. Among them is excessive competition. Many assume that competition always is wholesome and regard it as the specific for all commercial and industrial ills. But, in the railway business at least, its effects are mixed, some being good and some bad. Competition between railways often tends to stimulate them to improve their track, equipment and train service. But when the competition in service becomes unequal because, for one reason or another, the financial resources of the competitors are unequal, it often does harm which largely offsets its good. The stronger lines are able to put and keep their track, structures and equipment in relatively good condition; to build second tracks where they are needed; to install block systems, and so on. The weak roads are not able to do all these things, and in the effort to get and hold business they are likely to do the things which attract the most favorable notice from the public and neglect those things failure to do which attracts the least unfavorable notice. The ordinary traveler judges railways chiefly by their passenger equipment and train schedules. Therefore, not a few railways are tempted in the competitive struggle to neglect their track, to refrain from installing block systems, and at the same time to buy and operate heavy modern passenger equipment and to publish as fast schedules for their trains between competitive points as are published by rival lines with better track and structures. Among the results are numerous late trains; running that is too fast for the track, with all its attendant discomforts and dangers, and contributions to the statistics of collisions and derailments published by the Interstate Commerce Commission, and especially to those regarding derailments, which within recent years have shown alarming increases.

Unrestricted competition in other lines of business may not so plainly have bad effects. In other businesses it results in the long run in the elimination of the weaker; and whether one regards that as good or bad depends on his economic philosophy. But unrestricted competition between strong and weak railways always has some bad effects, because in the railway business the weaker competitor never is and never can be entirely eliminated. The ultimate result of unrestricted competition is to reduce the weaker lines to a position where they will go on indefinitely rendering a service which is unprofitable to their owners and managers and unsatisfactory and unsafe to the public.

The most important reason for the shortcomings of the physical properties, and for many of the resulting defects of the service, of the railways of the United States is their relatively small earnings; and their relatively small earnings are due partly to their relatively light traffic, but more to their low rates. The railways of Germany earn over $22,000 gross per mile; those of Great Britain almost $27,000; those of Belgium over $22,500; those of Switzerland $15,000; those of France over

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$14,500; while the average for our roads has never been $13,000. Now, everything a railway buys must be paid for, directly or indirectly, from gross earnings. Furthermore, our railways have to pay wages twice as high as those of European railways. As the railway dollar of the United States will not go nearly as far as the railway dollar of Europe, and as the number of dollars earned per mile here is somewhat less than in France and Switzerland, only a little more than one-half as great as in Belgium and Germany, and less than half as great as in England, the opportunities our railways have had for putting their properties in good shape have been relatively much smaller than those of the other railways named. In their earlier history their earnings were small because most of them were built into undeveloped territory where the traffic was sparse, and as soon as a competing road was built they began destructive rate wars. Their earning capacity has continued to be too small because just when they very sensibly began to make traffic arrangements or community of interest arrangements to increase and maintain their rates and earnings government regulation stepped in and destroyed the arrangements or forbade the increases in rates.

Another important cause of the relative want of safety and other defects of our railway operation and service is the shortcomings of their personnel. We have been told by an authority whose views carry great weight with the public, viz., the Interstate Commerce Commission, that "The most disquieting and perplexing feature of the problem of accident prevention is the large proportion of train accidents caused by dereliction of duty by the employees involved." To the lamentable tendency of employees to disregard operating rules and take risks is also attributable a great majority of the casualties and fatalities—other than those to trespassers—which result from accidents other than train accidents. For example, while the application of automatic couplers to practically all engines and cars has largely reduced the accidents occurring in connection with coupling and uncoupling, there are still many of them; and their continuance is due mainly to the risks carelessly or recklessly taken by employees. The many accidents resulting from employees stepping in front of moving cars, engines and trains are due to the same causes. Probably the blame for such accidents should not be visited entirely on the employees. It is the duty of the managements to use all available disciplinary and educational means to instruct and train employees so that they will not be careless or reckless. But the employees individually, and their organizations also, owe a duty to themselves and others; and the state has its duty; and few who are familiar with the conditions would say that the employees, their organizations and the various governments have done as much in proportion to reduce this fatal carelessness and recklessness as have the railway managements.

The same laxity which causes so many accidents is responsible for numerous other defects of service. While the frequent lateness of trains is often due to the policy of managements in publishing schedules which cannot be maintained, it is also often due to delays at stations which can be stopped only by greater alertness and celerity on the part of the station and train employees.

The statistics which constitute the worst feature of the accident reports of the Interstate Commerce Commission are those regarding fatalities to trespassers, which every year number more than one-half of all the fatalities reported. While the deaths of trespassers are charged up against the railways, as a matter of fact, the municipal and state governments, which do not make and enforce proper laws against trespassing, and not the managements of the roads, are responsible for them. They are not really railway accidents at all; and, therefore, the statistics regarding them should not be included under that head.

### WHAT HAS GOVERNMENT REGULATION ALREADY DONE?

What has government regulation done about the various defects of the physical properties, of the operation and of the service of our railways? What can and should it do about them? And what form should the regulatory legislation be given, and to whom should its administration be entrusted?

There have been many laws passed by state legislatures and Congress, and many orders issued by state commissions and the Interstate Commerce Commission, for the regulation of operation. These relate to numerous and varied subjects, including safety appliances on locomotives and cars, drinking cups on trains, locomotive headlights, block systems, the drinking of intoxicating liquors on trains, the frequency with which employees must be paid their wages, the number of hours they may be kept on duty, the number of them that must be employed on trains, the elimination of grade crossings, the speed of live stock trains, the clearances between tracks and overhead and lateral structures, and so on *ad infinitum*. At almost every session of a state legislature some new kind of law, and at almost every session of some state commissions some new kind of order, for the regulation of operation is produced. It would be astonishing if all this mass of regulatory measures did not contain some that were good. But those which have been conceived in intelligence and public spirit and brought forth in justice are so few compared with the total that you will have great difficulty in finding them. Having found them you are apt to think they are adventitious and not the result of deliberate thought and choice. Of all the subjects to which our law-making and law-administering bodies have applied themselves, to none have they devoted more stupidity, ignorance and unfairness than the regulation of railway operation. In most cases they have not tried to ascertain the conditions to be dealt with, the real evils to be remedied or the results their laws or orders probably would produce.

The character and the fruits of their labors have corresponded. If a bonfire were made of every state regulation in existence the operation of our railways would be made more economical and their service better and safer; and there are some federal regulations which might well be added to the conflagration.

I have referred to excessive competition as one of the causes of the shortcomings of our railway service. Have the regulators perceived this and acted accordingly? On the contrary, the various anti-trust laws, and especially the federal anti-trust law, have been applied to railways in all their rigor. Every consolidation, agreement or arrangement designed to moderate the fury of competition has been treated as a crime. Some such arrangements, as, for example, that regarding differential passenger fares between Chicago and New York, under which the fares charged are adjusted to the service and schedules of the different roads and trains, have been tolerated. But the general tendency of regulation has been to encourage fierce competition, whereas the public welfare demands that such competition shall be discouraged. It would be to the interest of both the railways and the public for the roads to be permitted to make binding and enforceable agreements regarding both competitive rates and competitive service subject to the supervision of competent regulating bodies. The spirit of our laws is hostile to such action.

In some cases when railways with bad track have been running trains at unsafe speeds to meet the competition of roads having better track, state commissions have fixed maximum speeds to be observed until their tracks were improved. Such action is justifiable and desirable. But the need for it is created chiefly by excessive competition. Why continue to stimulate the cause while trying to nullify the effect?

Furthermore, such action by the commissions merely substitutes one kind of poor service for another, and does not go to the root of the evil. It is better that trains should be slow than that they should be unsafe, and our accident record would be better if some railways had fewer trains with schedules too fast for their track and facilities. But a reasonably fast service is desirable on all railways; and when the passenger trains of a railway cannot make good speeds safely the primary evil consists, not in their attempts to run their trains fast, but in the conditions of track, structures, equipment, signals and so on, which make it unsafe to do so. In that case the true function of regulation is, not merely to fix some low maximum speed, but to ascertain the causes of the unsatisfactory physical conditions and stimulate and co-operate with the railway management in removing them. So as to all other deficiencies of roadway, equipment and service.

Now, while there has been much regulation purporting to be intended to cause physical improvements in railways, there has been very little which has been adapted to that end. Probably the best legislation for the regulation of railway operation ever passed was the safety appliance law enacted by Congress in 1893, together with the subsequent amendments to it. This law required the railways to equip their trains with power brakes, automatic couplers, secure grab irons and other safety appliances. But it did not require them to do anything which the investigations of their own officers had not shown was practical, or which the practice of many of the more progressive lines had not indicated was desirable; and it gave the Interstate Commerce Commission a broad discretion in administering the law, which made it possible for the railways and the commission closely to co-operate. Such co-operation was secured, and the result has been a steady improvement of the safety appliances on equipment of all kinds from the passage of the law until the present time.

In this case it was right and desirable that the legislation passed should apply uniformly to all roads, because, as freight cars circulate freely throughout the country, it would be dangerous to have those of different roads equipped in different ways. But in many cases to apply the same provisions to large groups of roads or to all of them is unjust and injurious. The needs and deficiencies of different roads may be wholly different. One may have bad track and a good block system; another, bad track and good equipment; another good track, but neither good equipment nor a good block system. Evidently if the same requirement, as for steel cars or block signals, is imposed on all, the results to the roads themselves and to the public will be widely different. If a road has bad track a law requiring it to install heavy steel equipment is almost certain to increase the number of accidents on it. Similarly, there is not the same need or justification for requiring the elimination of grade crossings on a road operating through a sparsely settled district as for requiring it on one operating through a densely populated territory.

In the preparation of most of the regulatory legislation such points have not been considered. The same requirements have been imposed on many, or even all, roads without reference to their differences in conditions. Railways have been required to use high power headlights regardless of whether they did not have greater need for block signals. They have been required to increase their clearances regardless of whether it would not have been more in the interest of safety for them to have spent the money on their tracks. They have been required to waste millions in employing useless men in train crews, when they needed the money to properly maintain their equipment. Even when improvements which were needed have been required the legislation regarding them often has been wholly unjust. In the city of Chicago the roads are being forced to bear the entire cost of elevating their tracks, which it is estimated will be $150,000,000, and this in spite of the fact that many more of their grade crossings have been created by streets being opened across their tracks than by their tracks being opened across streets.

### REGULATION OF OPERATION LARGELY A FINANCIAL QUESTION

Finally, law-making bodies and commissions are disposed to require all kinds of expensive improvements, while persistently ignoring the fact that it will be impossible to put the railways of this country in satisfactory condition without increases in their rates and net earnings. When the roads ask for increases in rates an attempt always is made to show that they are earning enough on their *present* investment. The Interstate Commerce Commission in its decision in the Eastern rate advance case conceded that this was not true of the eastern railways. But even if it were true of all the railways, this would not show that there ought not to be general advances in rates. If the roads are now earning barely a reasonable return on their present investment, clearly they cannot, with present rates and earnings, raise the billions which must be invested if block systems are to be generally installed, grade crossings to be eliminated, tracks to be strengthened, better equipment to be provided and so on. Most of the investment for such purposes would add nothing to their earning capacity. But a return must be paid on the additional investment; the means of paying it cannot be obtained except by increasing earnings; and the necessary increase in earnings can be gained only by increases in rates.

The question of regulation of railway operation is chiefly a financial one. The railways would gladly make every kind of improvement which the public demands. But the various regulating bodies control what they may earn, and, therefore, what funds they can raise. Therefore, the financial problem of regulation of operation is squarely up to the regulating bodies. As long as the earning capacity of the railways is limited as it is now, to require many of them to make one improvement is in effect to forbid them to make others which may be more needed, simply because they have not enough money and cannot raise enough to make all the improvements that are needed.

Besides regulation to compel the railways to make improvements in their tracks, structures, and equipment, there has been a good deal affecting their relations with their employees. The federal government and many of the states have passed laws fixing the maximum hours that certain classes of employees may be kept on duty. Many of the states have passed laws requiring increases in the number of men employed in train crews. All of the legislation affecting the relations of railways and their employees has tended to increase expenses, and most of it has purported to be in the interest of safety. But a large majority of the so-called "safety" laws have been promoted by the brotherhoods of railway employees, and usually their real purposes have been to increase the number of men that must be employed by railways, and to promote the political interests of the lawmakers passing them. The enactment of the provision prohibiting employees from being kept on duty more than 16 hours was justifiable, although the number of accidents traceable to the overworking of employees always has been negligible. The provisions of the federal and the various state laws prohibiting telegraphers concerned with the operation of trains from being kept on duty more than from eight to nine hours, regardless of the extent to which they are concerned with train movement are, as safety measures, indefensible. The same thing is true of the train crew laws.

It is notable that while government regulation has meddled with matters of this sort it has been conspicuously careful to abstain from taking any steps to deal with those derelictions of their duty by railway employees to which the Interstate Commerce Commission attributes a large majority of train accidents. When a railway employee in England or Germany is guilty of an infraction of duty which causes an accident he is pretty sure to be taken in hand by the government itself. Not so here. The noble and disinterested patriots who regulate railways and enforce laws in this country seldom forget for a moment the voting power of organized labor.

Why has past regulation of operation been what it has been? Too much of it has been inspired by prejudice and vindictiveness. Too much of it has been inspired by the representatives of labor brotherhoods seeking to promote the supposed interests of their members at the expense of the railways and the public, and adopted by lawmakers and commissioners who were thinking very little about the rights of the railways and the welfare of the public and very much about the votes they hoped to get by showing subservience to the labor brotherhoods. Too much of it has been inconsistent or conflicting because the several states and the nation have dealt with the same subjects in wholly different ways. Too much of it has been adopted in ignorance or disregard of whether the railways were able to bear the financial burdens imposed. Finally, most of the regulatory legislation has not been either drafted, adopted, or administered by persons possessing any expert knowledge of the matters with which they were dealing.

### HOW REGULATION SHOULD BE REFORMED

Lawmaking bodies are more likely than commissions to be inspired by prejudice and political motives. They are less able

than commissions to adapt their regulation to circumstances and conditions, for laws must be broad and sweeping in their terms. The commissions are more likely to act with knowledge, for their members have opportunity to study the conditions to be dealt with and to consider the probable effects of their measures, while lawmakers have not. Therefore, as far as is constitutional and practicable, the regulation of operation should be delegated to commissions. So long as the various states and the nation attempt to regulate operation independently, there will be inconsistencies and conflicts between the regulations adopted by the states, and between those adopted by the states and the nation. Therefore, either the states should be divested of their regulating authority or its exercise should be made subject to the control of the central government. Most of our regulation of railway construction, maintenance or transportation causes an increase in railway expenses, and, therefore, such regulating should be either done or controlled by the body which chiefly controls railway earnings in order that a proper relationship between income and outgo may be maintained. For all these reasons, and for others that might be mentioned, the Interstate Commerce Commission should be given paramount authority to regulate, not only interstate operation, but all operation.

The Stevens bill, now pending in Congress, apparently would confer on the commission the large discretionary authority over operation which it seems desirable it shall be given in order that the railways and the public may escape from still worse evils. It would, however, be folly to assume that the mere passage of this or some similar measure would solve the problem. The way laws are administered is as important as their provisions; and the character of their administration depends on the characters, attainments and abilities of those who administer them. Now, as to the personal character and ability of the present members of the Interstate Commerce Commission there is no question. But as to their fitness to administer a law giving them extensive authority to regulate railway construction, maintenance and operation there is serious question. The problems with which they would have to deal would be highly technical and extremely difficult. They are problems with which many men of great experience in railway affairs and of great ability have grappled for years with only partial success. They are problems of which no man can get even a fairly good working understanding without living in the closest touch with them for years. Now, the commission contains only one man who has had experience in the operation of a railway, and he was not a railway officer. Two of its members were economists in our universities; and the other four were lawyers. Men with their training and experience cannot know enough about railway mechanical engineering, maintenance and transportation matters to regulate them intelligently; and it is hard to believe that anybody ever could learn enough about them to regulate them merely by serving on a commission.

### THE COMMISSION'S ORGANIZATION FOR REGULATION

It would seem, therefore, that if the commission is to be given this extensive authority over operation a great effort should be made to secure the appointment to it of men with official experience in the operating departments of railways. As the commission deals with a diversity of subjects doubtless it is not desirable that it should be composed entirely of such men, but certainly at least two of its members should be railway experts, one being, perhaps, a technical man of the caliber of chief engineer or superintendent of motive power, the other an operating man of the caliber of general superintendent or general manager. The British Railway and Canal Commission never has more than three members sitting at once, but the law requires at least one of these to be "of experience in railway business." The Railway and Canal Commission is merely a court which passes on rate cases. How much more important it is that a body such as the Interstate Commerce Commission should have members of railway experience!

Besides having members of railway experience the commission, if it is to regulate operation extensively, probably should have a subordinate body composed of experts in railway engineering, mechanical, maintenance and transportation matters to look after the details of this part of its work. It already has some subordinate bodies which devote themselves to such details. There is a chief locomotive boiler inspector with two assistants and district boiler inspectors throughout the country. There is a chief inspector of safety appliances with inspectors throughout the country. Unfortunately, almost all of these men have been selected because they were members of and were backed by railway labor brotherhoods. Very few of them have received a technical training, and almost none has risen in railway service above the rank of employees. This does not demonstrate that some of them are not men of ability and of special fitness for their duties. A large proportion of the operating and executive officers of our railways have risen from the ranks. A good many even of the technical experts of the railways, including chief engineers and superintendents of motive power, have done so. And there is no reason why men taken from the ranks by the Interstate Commerce Commission should not likewise demonstrate the possession of more than average ability and develop into experts. In fact, some of them have done so. But plainly, if the commission should organize a board to deal with the problem of regulating construction, maintenance and operation, it would be preposterous for it to fill it with locomotive engineers, conductors and mechanics. Those appointed to such a board should have demonstrated their fitness beforehand; and men who had not risen in the railway service above the rank of employees would not have done this.

When the commission was directed to undertake the stupendous task of making a valuation of all the railways it did not organize an engineering board composed of railway employees. It organized one composed of the president of the American Railway Engineering Association, of the chief engineer of one of the state commissions, of a man who was both a professor of civil engineering in one of the state universities and chief engineer of the railway commission of his state, and of two consulting engineers. In completing the engineering organization of its valuation department it has drawn men of recognized ability and expertness from the official ranks of railways all over the country. The example the commission has set itself in organizing the engineering branch of its department of valuation should be followed if it should ever organize a board to have direct charge of its work of regulating operation. It should likewise be followed in selecting the men who doubtless would be employed in making inspections and investigations for it. Its inspectors and investigators should be chosen solely because of their special fitness to do their work fairly and intelligently, and not because they may happen to have the backing of some politician or labor organization.

### THE VARIOUS STEPS IN REGULATION

When the commission shall have thus formed its organization, how should it proceed with its work of regulation? It would seem that it should lay the foundation for it by causing careful investigation to be made as to the conditions of railway plants or service which may be at fault and as to the causes of them. For example, if the statistics of the commission continue to show an increase in the number of derailments it would obviously be the function and duty of the commission to make or cause to be made an investigation to determine whether this was due to general or local causes and what remedy or remedies should be applied. If the Brotherhood of Railroad Trainmen should petition the commission for an order requiring increases in the number of brakemen employed on trains, or if the state legislatures should continue to pass so-called "full crew" laws, it would obviously become the duty of the commission to make or cause to be made a careful and comprehensive investigation of the question whether a general increase, or local increases, or any increase at all, in the number of men employed on trains was required by the public welfare.

When the commission believed that it had found bad conditions which demanded some action it would seem that its next step should be to arrange for conferences between its members or representatives and officers of the railways to ascertain whether the proper remedies could not be agreed upon and

then applied by the managements of the railways themselves without the commission issuing any formal order. The commission in the past has had such conferences with representatives of the railways and of the railway labor brotherhoods regarding the administration of the safety appliance, hours of service and other laws. And in most cases they have led to agreements which were measurably satisfactory to the parties most directly concerned and have secured better results than would have been obtained by the issuance of arbitrary, formal orders which might have and very likely would have resulted in protracted litigation. It is probable that in a large proportion of all cases the railway managements and the commission could agree as to what each of them ought to do, if they would confer more frequently, more frankly, more fairly and with a minimum of suspicion of each other's good faith. If after investigation and conference the commission could not get any individual road or all roads to do what it thought should be done it would not follow that it must needs immediately issue some mandatory order. It would in a good many cases, if it exercised a salutary self-restraint, simply make public the facts, and then, for awhile at least, await developments. Publicity seems to many persons not to be a very sharp or heavy weapon, but, with all due respect to the Interstate Commerce Commission, the publicity which its hearings and reports have given to facts about the railway business which were previously unknown has, in my judgment, done a great deal more to raise the economic and moral standards of railway management in this country and to improve railway service than the formal orders it has issued. The power of common sense exercised by making public facts and drawing suitable conclusions from them "does not," as A. T. Hadley has said in discussing the subject of railway regulation, "seem as strong as statutory power to prosecute people and put them in prison, but in the hands of a man who really possesses it it is actually very much stronger." Only when other resources fail will a wise regulating body resort to the issuance of mandatory orders. And when it does so it will take the greatest pains to make them as little arbitrary as possible and as well adjusted to the special conditions of each case as possible.

When the commission shall have completed its organization and set it to work it will be necessary, if its regulation of operation is to be fair and successful, for it to consider every time it issues an order whether the earnings of the lines affected are sufficient both to bear the additional expense its order will cause and to enable them to expend all the money in the maintenance and improvement of their properties which they would have needed to have spent if it had not issued the order. It will not be sufficient for the commission merely to inspect, to find fault and to issue orders. The managers of most railways know the defects in their properties and service as well now as the commission will ever know them. And most roads whose earnings are sufficient go ahead as fast as is practicable remedying these defects. Most railway managers are as anxious as the public or any railway commission to see their properties put and kept in the best conditions. Their great problem is to find the necessary money; and this is the greatest problem which the commission will have to face and help the managements solve, when it undertakes the extensive regulation of operation; and if the commission does not face that problem courageously and co-operate intelligently with the managements in solving it its regulation of operation will be a failure or worse.

### WILL REGULATION BE SUCCESSFUL?

Suppose state regulation is entirely subordinated to federal regulation. Suppose federal regulation is placed entirely in the hands of the commission. Suppose the commission is given a large enough appropriation by congress properly to perform its functions. Will regulation of operation then be made fair, constructive and beneficent? Will the politicians let the commission alone so that it can do its work right, and will the commission prove big enough for the job? These are questions no one can answer. The only way to find out will be to try the experiment, as we are now trying that of making a valuation as a basis for the regulation of rates. If it is tried, like the experiment of valuation it will cost the public and the railways large sums; and the new burdens of the commission, together with its present burdens, will give it the heaviest duties and responsibilities ever imposed on any body of men in this country. If the commission tries merely to regulate the railways and not to manage them the experiment may succeed. If it tries to manage them, as it now seems to be trying to manage them under the guise of regulating rates, the results of the experiment will be widely different. In its regulation of rates the commission, instead of confining itself to the duty imposed on it by law, that of determining the reasonableness of rates in view of the actual situation of the railways, is trying to tell their managers all about how they can do their work better so as to change the situation and thereby effect savings that will make unnecessary advances in rates, which, under present conditions, are conceded to be needed. Now, while the commission may be able by purely corrective measures to protect the public from abuses which arise in connection with the financing of railways, the making of their rates and the rendering of their service, it never will be practicable for any single body of men, however able they may be and however much expert knowledge they may have, successfully to control the policies and direct the management of all the 250,000 miles of railways in this country.

Let us, therefore, hope that the more authority the commission is given the more self-restraint and the more disposition to confine itself to its proper functions it will show. Let us hope that it will avoid letting its judgment be warped by the egotistical assumption that because it possesses superior power it must also possess superior wisdom—an assumption which seems rapidly to destroy the sense of proportion of every bureaucracy and which in the long run always has made every form of paternalistic government a failure and a curse to mankind. The commission might do a great deal more good with its present powers if it would exercise them with a somewhat franker recognition of its own limitations and in a broader spirit of co-operation with the railway managements. And it may do very little good and much harm with much larger powers unless it shows the greatest patience, forbearance, expertness and courage in exercising them. Wisdom is demonstrated, not by the possession, but by the manner of the use of power; and the success of government regulation of railway operation will not be determined by the amount of power conferred on the commission, but by the way in which the power that is conferred is exercised.

## ECONOMY IN SIGNAL OPERATION

One large system has found that despite the higher first cost, as compared with direct current, it is cheaper to use alternating current for automatic block signals on its steam lines through the western desert country, and that this type of apparatus would still be the most economical, even were the cost of maintenance and operation more, under ordinary conditions, than would be the case were direct current used. The reason for this is that there is little water in the country, and water is essential to the life of any kind of battery. It costs less to transmit alternating current than it does to transport the same amount of energy confined in a storage cell from a central charging plant to the point of application. Labor of all kinds, and skilled labor especially, is scarce, and it is hard to make men stay in the country; therefore, wages are high. One man can look after a much greater mileage of alternating current than of direct current signals, as there are no batteries to be renewed and changed and the lamps can be electrically lighted, at very little cost, with metallic filament lamps. This arrangement eliminates lamp maintenance entirely, and provides a much more reliable and satisfactory type of illumination.—W. H. ARKENBURGH, in *The Signal Engineer*.

## NEW CAR FERRY OF THE FLORIDA EAST COAST RAILWAY

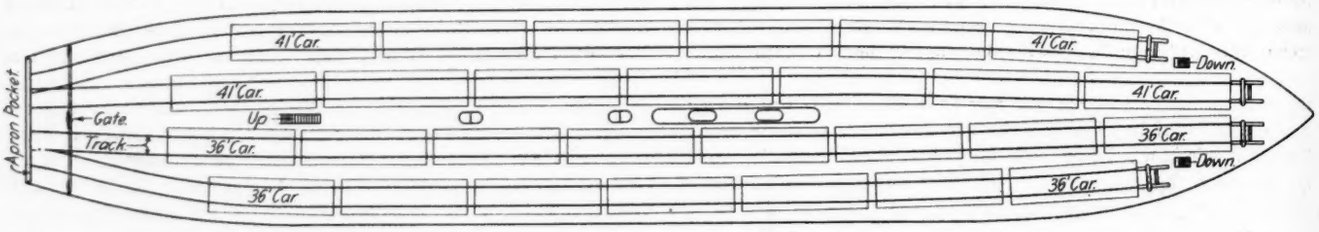
It was the ambition of Henry M. Flagler to establish an "all rail" route between the United States and Cuba whereby freight could be handled between points in the United States and the interior of the adjacent island without the necessity of transfer from cars to boats. The first step in this project was completed by the opening of the Florida East Coast Railway to Key West on January 20, 1912. Although Mr. Flagler has since died, the second and final step in this project was completed on January 7, by the inauguration of regular service by car ferry between Key West and Havana.

To provide this service the Florida East Coast has built a car ferry, the Henry M. Flagler, which is said to be the largest boat of its type in the world. It will make the trip between Key West and Havana, a distance of about 100 miles, in a scheduled time of eight hours. The Henry M. Flagler was built at the yards of the William Cramp & Sons Ship & Engine Building Company, Philadelphia, Pa., from plans and specifications prepared by M. C. Furstenau, consulting naval architect for the road, under the supervision of Robert W. Parsons, assistant to the president of the Florida East Coast. The keel for this boat was laid on April 20, 1914, and it was launched on September 22.

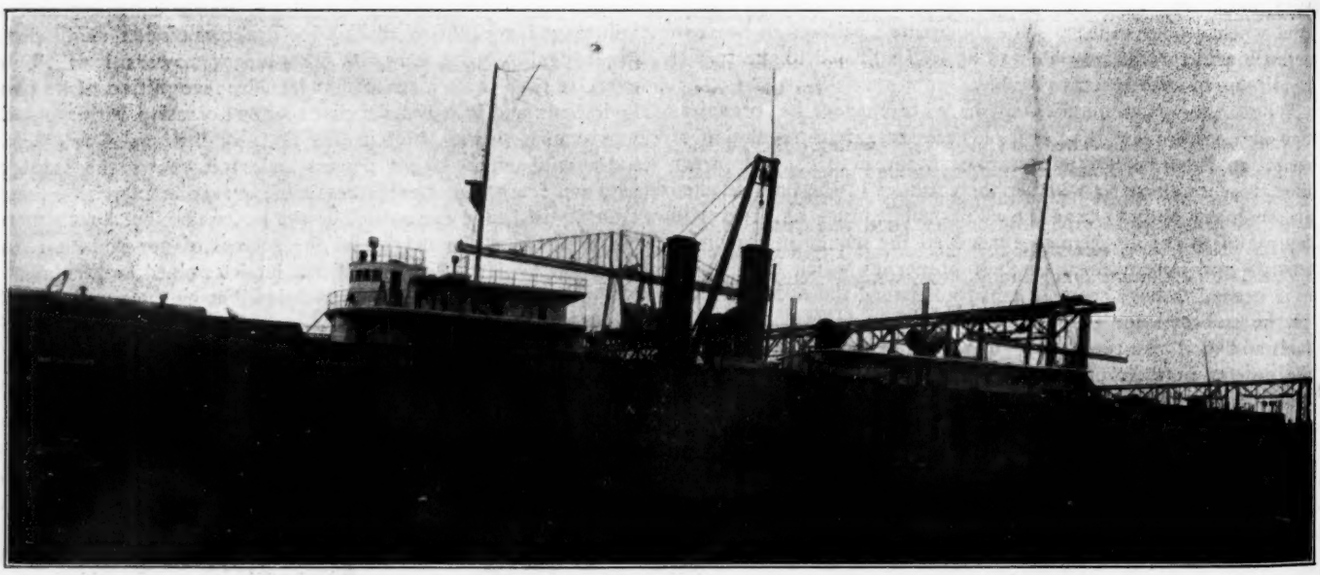
This ferry is 360 ft. long and 57 ft. wide on the car deck. There are four standard-gage tracks on this deck with a capacity of 26 41-ft. or 30 36-ft. cars. In addition to this there are three cargo holds which may be loaded directly either from the cars or through cargo ports at the side of the vessel. Each hold is served by an independent Williamson double-drum electric cargo hoist of two tons capacity. The dry cargo capacity of the ferry is about 3,000 tons.

The vessel is divided into watertight compartments, 10 of which are known as "deep tanks" and are used for ballast purposes, having a water capacity of 3,000 tons. They are connected by a system of pipes for filling and discharging which are served by two 12-in. centrifugal pumps with a capacity to discharge 3,000 tons of water in 75 minutes. In this way the steamer can be loaded to its load draft although no cargo is carried. One of the forward ballast tanks has been provided with the necessary apparatus for filling and discharging so that it is capable of carrying a cargo of molasses.

The power plant consists of two triple-expansion engines with cylinders of 20-in., 32½-in. and 54-in. diameter by 36-in. stroke. These engines are designed to develop 1,500 indicated hp. each at 100 revolutions per minute under 170-lb. steam pressure furnished by a battery of four Scotch marine boilers 13 ft. 2 in. in diameter by 12 ft. long, fitted with two 48-in. Morrison corrugated furnaces operated under the Howden system of forced draft. Complete auxiliary equipment, including feed, circulating and ballast pumps and an electric plant, is provided in duplicate. Running hot and cold fresh water is furnished in each room in the quarters for the officers and the crews, with four individual baths for the officers and four shower baths for the crews' quarters, which may also be supplied with cold salt water.




**Plan of Car Deck of Florida East Coast Car Ferry**



**The New Key West-Havana Car Ferry of the Florida East Coast Railway**

THE CHANNEL TUNNEL.—A letter from the Deputy M. Goubhier de Clagny has recently appeared in several Paris papers, making an appeal to the British nation in favor of the construction of a tunnel under the English Channel. M. de Clagny emphasizes the advantage such a tunnel would be to the Allied armies at the present moment, owing to the increased facility of communications between the two countries which it would afford, and in conclusion urges that the work should be begun at Dover and Calais before the signature of peace.

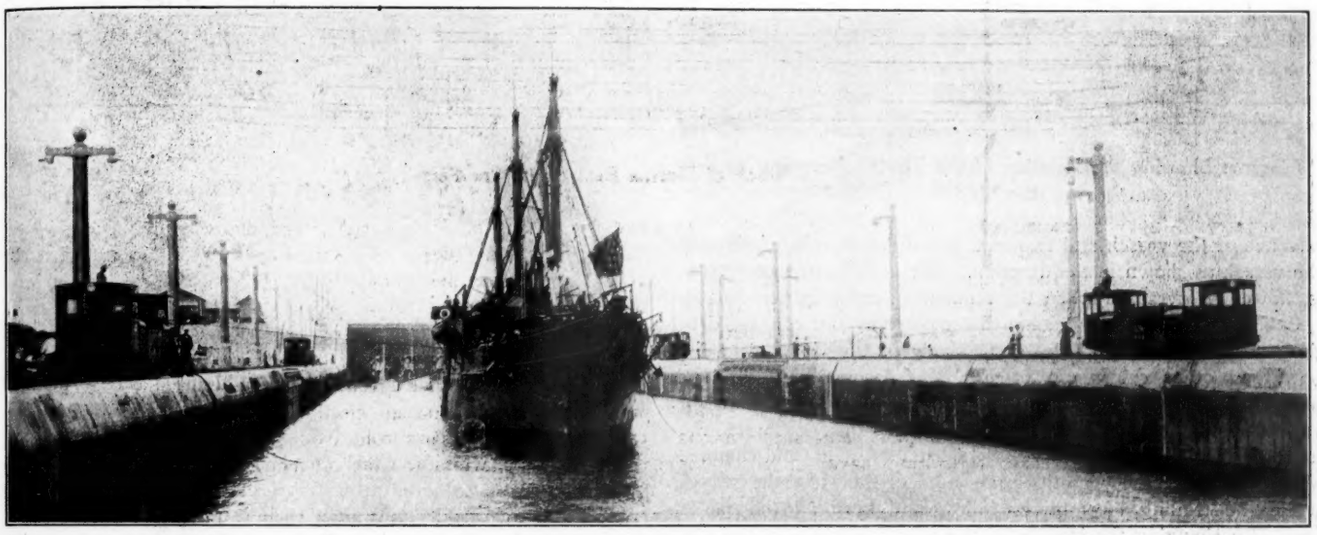
# Electric Towing Locomotives for the Panama Canal

## Designed for Operation on a Rack Rail and Grades of 44 per cent. Between Locks; Four Engines for Each Boat

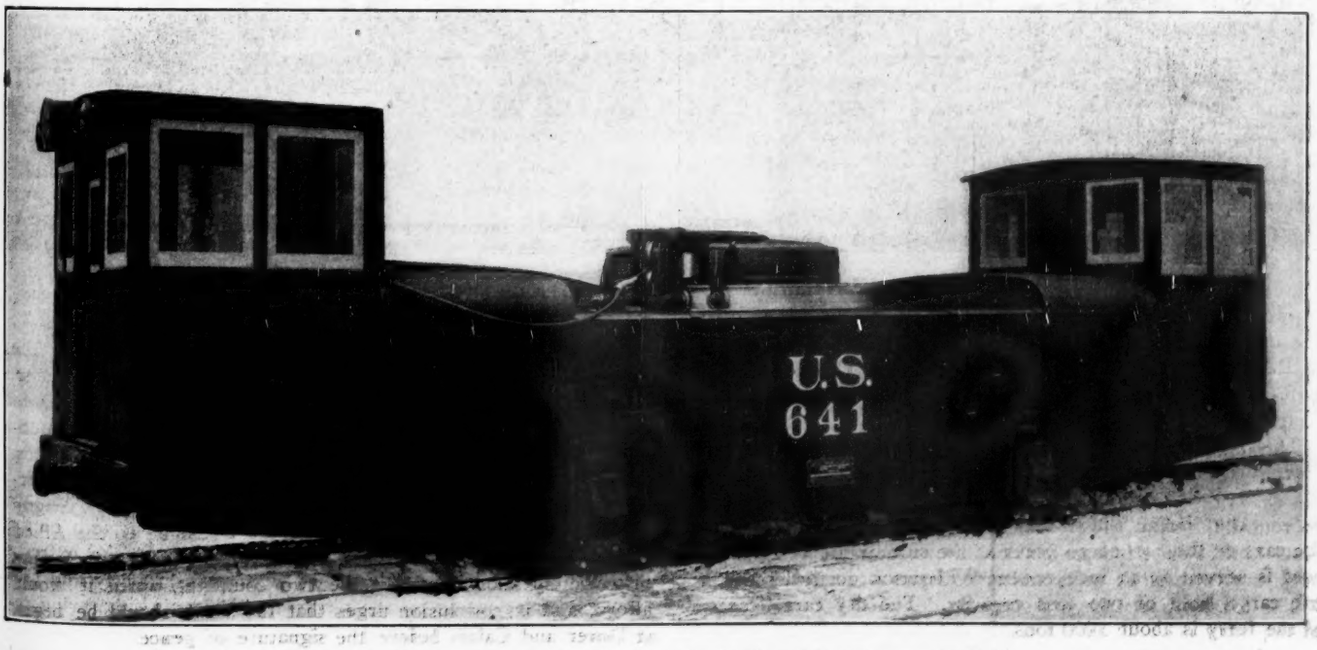
After a thorough study of the problem of maneuvering ships through the locks of the Panama canal, it became evident that they should not proceed under their own power, and that a substitute for the ship's power should embrace the following requirements: Ability to place the ship in proper relation to the lock; capability of keeping the ship to its course; accelerating and retarding the ship without breaking the lines; the lines when once attached should be used without change for lockage in flight; a small number of skilled operators rather than a large number of unskilled men to co-ordinate.

The towing system employed was designed and patented by Edward Schildhauer, electrical and mechanical engineer of the Isthmian Canal Commission; and the 40 towing locomotives and all the electrical apparatus for operating the locks, were built by the General Electric Company, Schenectady, N. Y.

In passing through the canal from the Atlantic to the Pacific a vessel enters the approach channel in Limon bay, which extends to Gatun, a distance of about seven miles. At Gatun it enters a series of three locks in flight and is raised 85 ft. to the level of Gatun lake. It may then steam at full speed through the channel in this lake, for a distance of 24 miles, to Bas Obispo, where it enters the Culebra cut. Passing through this cut, which has a length of nine miles, it reaches Pedro Miguel, where it enters a lock and is lowered 30 ft. It then passes through Miraflores Lake for a distance of 1½ miles until it reaches Miraflores, where it is lowered 55 ft. through two locks, to the sea



**United States Submarine Tender "Severn" in the Middle East Chamber of Gatun Locks, with Four Towing Locomotives Ready for the Lowering of the Water**




**Electric Towing Locomotive Used at the Locks of the Panama Canal**

level, after which it passes out into the Pacific through an 8½ mile channel.

The main features of all the lock sites are identical and a brief description of the layout and methods at Gatun Locks will give an idea of the docks in general. There are two ship channels, one for traffic in each direction. The channels are separated by a center wall, the total length of which is 6,330 ft. There are two systems of tracks, one for towing and the other for the locomotive when returning idle; this, however, refers only to the outer walls. For the center wall, there is only one return track in common for both the towing tracks. The towing tracks are naturally placed next to the channel side, and the system of towing utilizes normally not less than four locomotives running along the lock walls. Two of them are opposite each other in

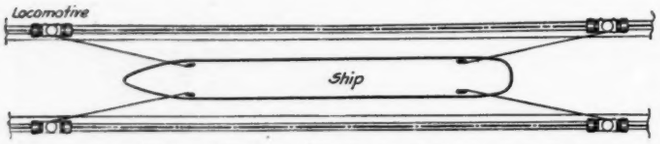
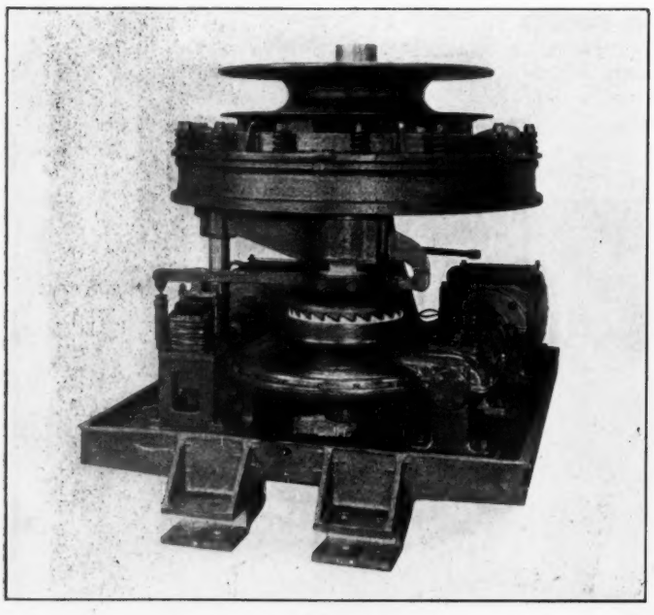



**Diagram Showing the Relation of the Towing Locomotives to the Ship**

advance of the vessel, and two run opposite each other following the vessel, as shown in the diagram. The number of locomotives is, however, increased when the tonnage of the ship demands it.

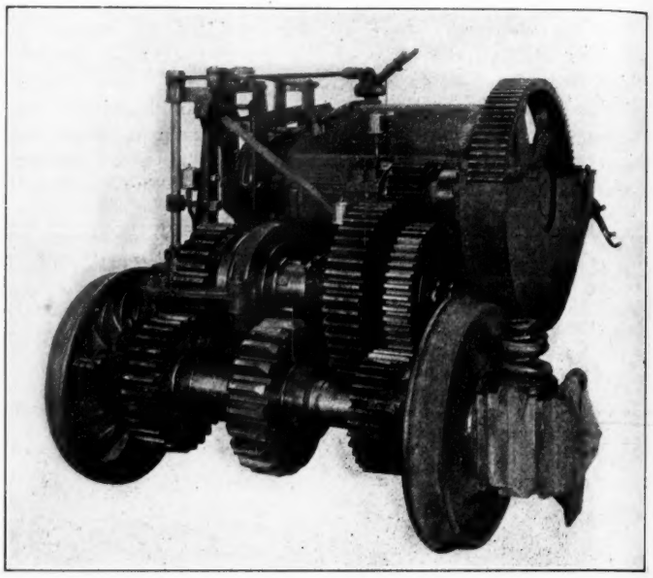
Cables extend from the forward locomotives and connect with the port and starboard sides respectively of the vessel near the bow, and other cables connect the rear locomotives with the port and starboard quarters of the vessel. The lengths of the various cables are adjusted by a special winding drum on the locomotive to place the vessel substantially in mid-channel. When the leading locomotives are started, they tow the vessel, while the trailing locomotives follow and keep all the cables taut. By changing the lengths of the rear cables, the vessel can be guided; and to stop the vessel, all the locomotives are slowed down and stopped, thus bringing the rear locomotives in action



**Arrangement of the Windlass and Base on the Towing Locomotives**

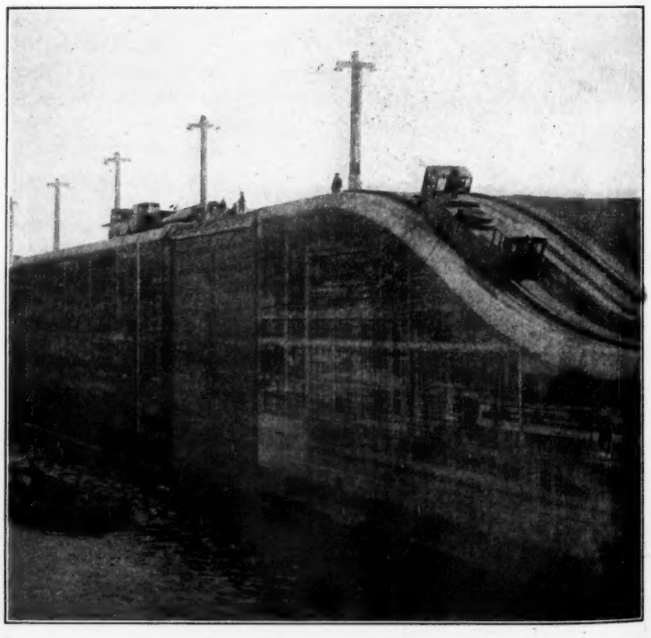
to retard the ship. Therefore, the vessel is always under complete control quite independent of its own power, and the danger of injury to the lock walls and gates is very greatly lessened.

The towing tracks have a specially designed rack rail extending the entire length of the track and located centrally with respect to the running rails. It is through this rack rail that the locomotive exerts the traction necessary for propelling large ships and climbing the steep inclines. A rack rail is also provided on short portions of the return track so as to lower the locomotives safely from one level to the next. The steepest slope is 26 deg., or 44 per cent, hence the need will be seen for a



**Front View of Traction Motor Unit, with Journal Box in Place**

rack rail even on the return track, it being noted that any traction locomotive with the usual wheel drive, even with the brakes set, would begin to slide on a 16 per cent grade, and therefore could not be controlled. With a rack rail, however, traction is limited only by the capacity of the driving motors and not by the adhesion of the wheel treads on the rails. The rack rail is



**Locomotive Ascending the Incline Between Locks**

made with an approach section that can be depressed on the approach of the rack pinion of the locomotive. The teeth of the approach section are undersize and shaped off at the extreme end so that the teeth of the pinion will mesh properly and prevent excessive strain on the pinion and the axle. A spring restores the approach to the proper position after the locomotive has passed over. The rack rail is of the shrouded type, and

each tooth space has a drain hole cast in the bottom so as to carry off water and other accumulations to suitable drain pipes or ducts set in the concrete of the walls. A further feature is projecting edges, which permit thrust wheels attached to the locomotive to run along the under side and prevent overturning of the locomotive, in case some unforeseen operating condition should produce an excessive pull on the towline. These thrust wheels serve to counteract the lateral component of the towline pull and the flanges act for emergency only, as the weight of the locomotive is sufficient to prevent overturning with a normal pull of 25,000 lb. on the towline.

Three-phase, 25-cycle, 220-volt alternating current is used for operating the locomotives, and the current is supplied to the locomotives through an underground contact system. Two T-rails form two legs of the three-phase circuit and the third leg is formed by the main track rails. A specially designed contact plow slides between the two T conductors and transmits the power from the rails to the locomotive. This contact plow also passes through a slot opening in the conduit cover and is flexibly connected to the locomotive in such a manner as to follow all irregularities in the tracks and crossovers.

The working parts of the locomotive are supported by two longitudinal upright side frames of cast steel, connected by transverse beams. These frames are in effect deep rigid trusses, having upper and lower members connected by posts and diagonal braces. The middle portion of each frame has its upper and lower members parallel and horizontal, but the end portions have their lower members inclined upwardly towards the ends of the frame. The pedestals for the wheel axles are located at the junction of these end portions with the middle portion, and are of the usual locomotive type, having vertical parallel jaws between which the journal slides. The locomotive is mounted on four wheels, the wheelbase being 12 ft. and the over-all length about 32 ft. Each axle is driven by its own motor, independent of the other and the construction is identical at both ends.

The motors are of the three-phase, slip-ring type, enclosed, and are geared by a pinion and spur gear to the countershaft, which carries a pinion meshing with a spur gear keyed to the jack shaft. On the outer side of the spur gear are formed clutch teeth which co-operate with similar teeth on the adjacent side of a gear, which is sleeved upon the jack shaft and can be slid lengthwise thereon to engage and disengage the clutch teeth. The means for sliding this gear consists of a disc secured to the gear and having a central hub fitting over the end of the jack shaft. A pinion is keyed to the axle and is wide enough to mesh always with the gear, so that when the clutch teeth are engaged, the motor will propel the locomotive by the adhesion between the wheels and the rails of the track, and this only when running without load and between inclines.

When the locomotive, however, reaches one of the inclines between the locks, the grade of which may be as much as 44 per cent, or when it is towing a ship, the cog rail system is utilized to enable the locomotive to climb the grade and exert the traction necessary for pulling large ships. The cog or rack rail is laid between the track rails; and the locomotive is provided with a cog wheel or rack pinion secured to or integral with a sleeve, which rotates freely on the axle.

In connection with each motor a powerful brake is installed; and, as during operation the motors are at all times geared either to the axles or to the cog wheels, the truck wheels are not provided with any brake rigging. In addition to this automatic brake, means are provided for applying the brakes manually in order to supplement the action of the automatic feature, if necessary, when descending a grade or where approaching a rack rail.

Each of the two main traction motors has a rating of 75 hp., and is of the slip ring induction type, operated by a system of contactors with a master controller in each cab. The motors, by means of the change in gearing from straight traction to rack rail towing, drive the locomotive at a speed of 2 miles an hour when towing and 5 miles an hour when returning idle. These motors act as induction generators running above synchronous speed when the locomotive is passing down the steep inclines and thereby exert a retarding brake effect to keep the speed uniform.

The locomotives are provided with a windlass which will pay out or wind in the towing cables at the low rope speed and at the full tow line pull of 25,000 lb., either when the locomotive is running or at rest.

These locomotives have a net weight of 86,300 lb. During the first three months of commercial operation of the canal, from August 15 to November 15, 1914, the cargo transported through the canal and towed through the locks by the locomotives amounted to 1,079,521 tons. During the fiscal year ending June 30, 1914, the Panama railroad carried 643,178 tons of through freight between the two seaboards, and in the preceding fiscal year 594,040 tons. From this it is seen that between six and seven times as much cargo is passing over the isthmus now as passed over the route when goods were transshipped by rail.

## B. L. WINCHELL ON PERSONAL EFFICIENCY

B. L. Winchell, director of traffic of the Union Pacific System, addressed his New Year's greeting to traffic department employees, including officials, in the form of a circular letter on "Personal Efficiency." He said in the letter that his purpose in issuing the circular was to ask every person employed in the traffic department of the system "to give earnest and honest consideration to his own habit of thought and life; to make a simple self-test of efficiency and to start the new year determined to reach higher levels of effort and accomplishment." "Self-examination is usually profitable," he said, "and but few of us do enough of it." The circular included a "personal efficiency test" taken from an article by Edward Earle Purinton, published in The Independent of November 30, 1914, which included a series of 30 questions on personal efficiency, with a space in which to record the percentage of efficiency after a self-analysis. Some of the questions are as follows:

"Do you like your work?

"Have you learned the best, quickest and easiest way of doing it?

"Do you know where your greatest power lies?

"Have you a fixed goal, in line with your supreme talent?

"Do you believe absolutely in your own future?

"Have you learned how to get well and keep well?

"Have you made an inventory of your mental and moral traits?

"Are you correcting your own weaknesses; mental, financial, social or spiritual?

"Have you discovered which foods, baths and exercises increase your energy and heighten your mentality?

"Are you independent, fearless, positive?

"Are you tactful, cautious, courteous?

"Have you secured the best possible advisers and associates?

"Do you wish your rivals well, and never speak ill of them?

"Do you work harder than anybody else in the business?

"Have you learned the science of planning your day ahead?

"Can you relax entirely in your leisure hours?

"Are you saving money systematically?

"Do you enjoy art, music, literature and the presence of little children?

"Does your highest ambition include some real service to humanity?"

The letter continued: "I do not ask or expect that the result shall be shown to any officer or employee of these companies. I do recommend that you show it to your wife or mother, if, fortunately, you have one or both. If the result of this taking stock shows that you can do better (as it will show to any man of good conscience) will you?"

# United States Board of Mediation and Conciliation

## The Annual Report of a Commission Which Specifically Asks That No Further Power Be Conferred on it

The following is a very full abstract of the report of the United States Board of Mediation and Conciliation:

The immediate cause for the passage of the present law [the Newlands act] grew out of the demands of the conductors and trainmen in "Eastern territory" which had been presented, in a concerted movement, some months previously to 42 eastern railroads in what is known as eastern associated territory. The 22,752 conductors involved in this movement were represented by the Order of Railway Conductors, A. B. Garretson, president, and the 69,697 trainmen were represented by the Brotherhood of Railroad Trainmen, W. S. Lee, president. The 42 railroads were represented by a conference committee of managers of which Elisha Lee, of the Pennsylvania, was chairman. The direct negotiations between the parties resulted in a refusal by the railroads to grant the demands of the men on the ground that the rates of wages then prevailing were adequate and that the employees were working under favorable conditions. A strike vote had been taken resulting in some 97 per cent of the employees voting to withdraw from the service of the railroads unless their demands were complied with. The situation was an aggravated one and reached an acute stage early in July, 1913, which threatened a complete tie-up of all the railroads in that territory to the serious detriment of the public interest, incalculable losses to both parties to the controversy, and widespread financial disaster to the country. The public mind was excited and the bill which had been pending in Congress for some months was, upon the advice of the President, promptly enacted into law to meet the emergency.

Immediately upon the appointment of the officers as authorized by the act the services of the United States Board of Mediation and Conciliation were tendered to both parties to the controversy and promptly accepted. As all of the parties to the controversy were assembled in New York City the mediation conferences were opened there on the day following the appointment of the mediators.

The mediators met the representatives of the two parties in separate conferences and early in these sessions ralized that the only method of amicable adjustment would be through arbitration, and thereupon directed their efforts to induce the parties to submit their controversy to a board of arbitration, in accordance with the provisions of the act. This was done and the award of the board was rendered on November 10, 1913, and went into effect upon the entry of judgment thereon by the district court of the United States for the Southern District of New York ten days thereafter, and subject to certain interpretations by the reassembled board, has since been in practical application throughout the affected territory.

During the pendency of the foregoing arbitration the services of the Board of Mediation and Conciliation were requested in 10 other cases. In seven of them amicable settlements were secured by the Board through mediation. In two of the remaining cases many of the points in controversy were settled by mediation, the points remaining unsettled going to arbitration, while in one case all of the matters in controversy were settled by arbitration.

Case No. 2 was a concerted movement by the engineers, firemen and trainmen against the Chicago & Western Indiana and the Belt Railway of Chicago. The application in this case was made by the railroads and the services of the board were promptly accepted by the employees; mediation was conducted in Chicago beginning August 4, 1913, and the unsettled points of the controversy were submitted to arbitration, the award of the arbitration board being rendered September 17, 1913.

Case No. 4 was a concerted movement by the engineers, firemen, conductors and trainmen against the Southern Pacific (Pacific system) the request for mediation coming from the railroad on July 31, 1913. Mediation conferences were held in San Francisco, Cal., and resulted in the settlement of all points of difference save one. This question—the determination of what constitutes street car service as distinguished from suburban electric service—both parties agreed to leave to the decision of an independent board of three umpires of which Hon. John F. Davis of San Francisco was selected chairman. Their decision was rendered October 17, 1913.

Case No. 6 was a concerted movement on the part of the conductors and trainmen against the Chicago, Burlington & Quincy, with 150 points of difference between the employees and the railroad. The application to the board was made by both parties. Mediation conferences were begun in Chicago on August 21, 1913, which resulted in the amicable settlement of 111 of the contentions, and the remaining 39 disputed points were submitted to arbitration November 3, 1913. This was an exhaustively contested case. A board of six arbitrators was demanded by the parties, the railroads choosing as their representatives on the board Fairfax Harrison, president of the Chicago, Indianapolis & Louisville, and P. H. Morrissey, assistant to the vice-president of the Chicago, Burlington & Quincy. The employees named as their arbitrators E. R. Curtis, vice-president of the Order of Railway Conductors, and E. L. Harrigan, general chairman of the grievance committee of the Brotherhood of Railroad Trainmen of the Northern Pacific. The Board of Mediation and Conciliation appointed Hon. Gerrit J. Diekema, of Holland, Mich., and Hon. Henry S. Boutell, of Washington, D. C., as neutral arbitrators. The arbitration board organized with Mr. Boutell as chairman and appointed H. S. Milstead secretary. Pending the arbitration Mr. Harrison was elected president of the Southern Railway which necessitated his removal from Chicago and his residence in Washington, and Hon. Pierce Butler of St. Paul, Minn., was chosen as his successor on the arbitration board. The award of the board was rendered on February 19, 1914. The history of these cases, which arose in the early workings of the law, has been given in some detail to briefly indicate the methods adopted by the board in the adjustment and settlement of controversies.

In all there have been 28 cases similar in character and importance to the foregoing brought to the attention of the board during the year by one party or the other, or jointly in some instances, in each of which the controversy was of such a nature that a tie-up or suspension of train movements would have resulted except for the settlements which were reached through the services of the board. In all of these cases, with the exception of two, strike votes had actually been taken before the services of the board were requested. In three of the most serious cases the services of the board were tenderd, without the request of either party, resulting in amicable adjustment in two cases by mediation and the other by arbitration.

There have been only two cases since the passage of the law where the strike votes became effective. In one of these cases the request for mediation services was not received until late in the evening and the strike already set for 6 o'clock the next morning. Previous to the request the board had no knowledge of the situation. The controversy in that case was between the engineers, firemen, conductors, trainmen and telegraphers and one of the heaviest traffic roads in eastern territory, serving a densely populated industrial section with terminals in several of the largest cities of the country. It was practically impossible to get in touch with the officers of the railroad and the general officers of the labor organizations in charge of the strike during

the night, and the strike went into effect as ordered, resulting in a complete tie-up of train movements. By 11 o'clock, within five hours of the inception of the strike, all the parties representing the contesting interests had been reached by telegraph and met in conference with one of the mediators at the headquarters of the railroad company, and before the close of that day, within twelve hours of the commencement of the strike, full train movements were resumed and the question in controversy were promptly adjusted through mediation.

In the other case the application for mediation was received from one of the parties to the controversy but mediation was declined by the other a few hours before the hour set for the strike. The controversy in that case was a peculiarly difficult one for the board to handle because it involved the refusal of the railroad company to meet the representatives of the five organizations connected with transportation, acting in concert, and it was not until this impediment was removed through the services of the board that the parties were brought together. In the meantime the strike had become effective and the interruption of transportation was practically general throughout the system for three days. In connection with the agreement to meet the representatives of the labor organizations, both parties agreed to refer to future mediation any of the matters in controversy which they were unable to settle by direct negotiations, agreeing to the condition, required by the board, that uninterrupted train movements should be resumed in the meantime. This was done promptly and an amicable adjustment in this case was reached, without any destruction of property and with comparatively slight detriment to the public interest.

It is interesting to know that of the 28 cases in which the board's services were required, 21 were wholly adjusted through mediation; two by arbitration after many of the points in dispute had been disposed of through mediation; while in only five cases was it necessary to submit all the matters in controversy to boards of arbitration.

The list of cases herewith furnished embraces only the classes of controversies that threatened to interrupt, or were actually interrupting, the business of the railroads to the serious detriment of the public interest, and is therefore but a partial statement of the labors of the board.

A custom has grown up among both employers and employees to refer their controversies of a less serious nature also to the board, and while the board has not unduly encouraged this practice it has readily, as far as practicable, employed its services wherever by so doing it was considered in the public interest. Such services, perhaps, are not strictly within the letter of the organic law but are undoubtedly within its spirit, and the readiness with which both parties invoke the services of the board is a very high testimonial to the wisdom of the law and the benefits resulting from its administration. Controversies of this nature generally involve the interpretation of schedules and contracts which cover both rates of pay and conditions of service; and, in some instances questions of discipline, notwithstanding the generally recognized principle that the railroads reserve and exercise the undisputed right of discipline. In matters of discipline purely, the customary course, before the passage of the Newlands act, was by way of appeal through the employees' committees from an unsatisfactory decision of a minor official to officials of higher grade of the railroads, and in case the decision was sustained the brotherhood organizations had no recourse except through a strike or a threatened strike. Since the passage of this act, however, while either of the parties could refuse a proposal from the other to submit a controversy growing out of a matter of discipline to the board on the ground that it was not a subject of mediation in the contemplation of the law, it is a significant fact that questions of discipline are not infrequently brought to the board by the requests of both parties, and in such cases, as well as in many other controversies, involving interpretations of schedules and working contracts, the board has yet to learn of an instance where its advice has not been accepted and amicable settlement reached.

Mediation is wholly a voluntary procedure in the contemplation of the law. Both parties, even, may decline to invoke it, and where the services of the board are requested by one of the parties the other may decline to accept them, and both may decline where the board tenders its services in the absence of application. There have been, however, only three instances so far where the conditions were such that the board exercised its authority to volunteer its services without request from either party, and there has been no case in which either party has refused to accept the services of the board when requested by the other. In eight cases the requests have been the joint action of both parties; in six cases application was made by the roads and services accepted by the employees and in 11 cases application was made by the employees and services accepted by the roads. Notwithstanding, therefore, the fact that mediation of disputes is a voluntary procedure and that the board has only advisory authority, the law has been administered so as to meet substantially all the conditions that the advocates of a compulsory arbitration law demand. In fact, it is questionable whether a compulsory mediation law would operate as satisfactorily as the present law, which depends primarily for its success upon the voluntary action of the parties to a controversy.

In not a few instances the parties have requested and even urged the board to settle their controversies as if in arbitration, but this the board has declined to do; because, in the first place, in its opinion, the language of the law did not confer such authority, and, secondly, because it would jeopardize, if not destroy, the mediatory efficiency of the board. The board advises, and makes rulings, but always without binding the parties to accept the same.

Perhaps the most difficult work the board has encountered has been in the execution of that provision of the law which requires it to "at once endeavor to induce the parties to submit their controversies to arbitration" when its "efforts to bring about an amicable adjustment through mediation and conciliation shall be unsuccessful." When all mediation and conciliation efforts have failed, arbitration is the only recourse for a peaceful settlement of the controversy, and both of the parties feeling equally the justness of their cause naturally hesitate to submit their contentions to an arbitration board, because it is an arbitration board and not the Board of Mediation and Conciliation that has authority to render an award which, under the terms of the law, becomes the judgment of a court. The law requires the filing of the award, on the day of its rendition, in the district court of the United States for the district in which the arbitration is held, and if not successfully appealed from within ten days judgment is entered thereon.

There has been only one appeal from an award during the year, and in that case the award was successively affirmed by the district judge and by the circuit court of appeals.

The operations of the board both in its mediation features and in arbitrations brought about through its advice, have directly affected every railroad east and several of the largest systems west of the Mississippi river. Perhaps three-fourths of the railroads of the country in capital and trackage have been involved in these controversies, in which the organizations representing the engineers, firemen, conductors, trainmen, switchmen, telegraphers and maintenance-of-way men, aggregating 124,503 employees, have been concerned, in some cases in single movements and in other cases in concerted movements.

The administration of the law, it is believed, has demonstrated the wisdom of its enactment. Through its salutary influences, as a federal statute, it has evoked popular approval and the sympathetic co-operation of the railroad managers and the vast army of their employees, without which approval and support the efforts of those to whom its administration has been intrusted would have been far less successful.

The first federal law providing for the mediation and arbitration of controversies between the railroads and their employees (Act of October 1, 1888) was practically a dead letter. It was invoked only once during its existence, and in that case by the

President of the United States acting without the request of the parties; and this notwithstanding the fact that during the years 1881-1898 there were an average of 22 strikes affecting an average of 29 railroads each year.

The second enactment of Congress (June 1, 1898, commonly known as the Erdman law) undertook to correct the defects of previous legislation. Although it was the result of long agitation and embodied the proposals largely of the railroads and labor interests immediately concerned, its provisions during the first years of its existence were rarely availed of. The records of the department of commerce and labor (report of the commissioner of labor, 1906) show that from the year 1901 to 1905 there were 329 strikes affecting railroad transportation, while during that period there was only one instance in which the provisions of the Erdman law were invoked, and in that case the request for mediation made by the employees was declined by the companies, and the record of the department does not show how the controversy was finally disposed of.

From 1906 down to the enactment of the present law there were in all 48 cases settled on request of the parties either by mediation under the Erdman law or by arbitrations in accordance with its provisions. Seven of these cases were concerted movements, involving many of the various classes of employees and involving in each instance a large number of railroads, in one case as many as 64 roads. Of these 48 cases coming under the Erdman law during the fourteen years of its existence, 20 were settled through mediation, eight were settled by mediation and arbitration, and four by arbitration alone. In the remaining 16 cases the services of the mediators, requested by one of the parties, was either refused by the other, or direct settlements were reached between the parties after the services of the mediators were invoked without employing them or resorting to arbitration.

It is, perhaps, too early in the administration of the law to suggest amendments, and no action has been taken by the board either in support of or in opposition to various amendments that have been suggested, some of which have been introduced in Congress. The policy of the board has been to let well enough alone until time and longer experience should demonstrate the necessity for changes in the law. Complaints and criticisms of the law, so far as the board is advised, do not relate to the methods of mediation or to arbitration procedure, but relate to the application of awards. Complaint is urged by the employees that the application of an award, being wholly within the control of the employer, they have no recourse except through an appeal which in effect brings the subject-matter again back to mediation. The attitude of the employees in this connection is that while mediation and arbitration under the law are properly voluntary movements, the application of an award when the court's judgment has been rendered thereon should be compulsory, and that some method should be provided, through legal machinery, for its prompt and proper application by the railroads. On this subject the board feels that it is relieved from making any remedial suggestion except that in no event should methods of application of an award or its enforcement be committed to or imposed upon the board. Its duties have been wisely confined to mediation and conciliation, and those remedies failing, to use its best endeavors to induce the parties to arbitrate their controversies, and the duty of the board in future, as now provided by law, should be confined exclusively to these fields of operation.

The organic act carried an appropriation of $25,000 which was found to be about sufficient to cover the salary of the commissioner and the assistant commissioner, office employees, office rent, cost of traveling, and general miscellaneous administrative expenses. The expenses incident to arbitrations are all borne by the government, and as these increased during the year it became necessary for Congress to provide additional funds, and two deficiency appropriations, one of $10,000, and another of $40,000 were granted. Of these appropriations aggregating $75,000 there was expended in the eleven and one-half months from the organization of the board to the close of the fiscal year the sum of $20,567 for salaries and for what may be termed purely administrative purposes, and the sum of $33,645 for expenses of arbitrations. The present law provides for either three-member or six-member boards of arbitration, as the parties may desire, and the policy of the Board of Mediation and Conciliation to limit an arbitration board to three members where the controversy is between one class of employees and a single road has generally been agreeable to the parties. In the concerted movements where more than one class of employees or a number of roads are involved an arbitration board of six members is employed. The expenses of arbitrations are carefully guarded by the Board of Mediation and Conciliation, and while the amount in the aggregate may appear large the work in reality has been accomplished on economical lines. The surplus of $20,788 of appropriations over expenditures which was conveyed back into the treasury at the end of the fiscal year, resulted from the fact that certain arbitrations which were anticipated at the time the last appropriation of $40,000 was granted, did not take place before the expiration of the year. An appropriation of $50,000 has been granted for the year 1914-15 and may or may not prove sufficient, depending upon the number and cost of arbitrations held during that period. The normal administration expenses will continue through the year without material change.

## A COMPARISON OF THE OLD AND NEW LINES OF THE CANADIAN PACIFIC AT ROGERS PASS, B. C.

In our issue of December 11 the location and construction of the five-mile tunnel which the Canadian Pacific is driving through the summit of the Selkirk mountains, at Rogers Pass, B. C., was described. Since the publication of this article a comparison of the operating characteristics of the old and new lines has been made available in an article by J. G. Sullivan, chief engineer of the Canadian Pacific, in the Cornell Civil Engineer for December, 1914. The following data are taken from this article:

The line on the present location is 23.1 miles long, and on the revised location 18.68 miles. The grades for westbound traffic on the present location consist of 16.65 miles, ascending on a maximum grade of 2.2 per cent, 6.45 miles of down grade with the same maximum, and with a total rise of 1,726 ft. and a drop of 692.1 ft. with 1,860 deg. of curvature on the up-hill and 1,288 deg. on the down-hill portion of the line. The revised location consists of 16.77 miles of up-hill grade, with about 5 miles of 2.2 per cent pusher grade, the balance of 1 per cent and a down-hill run of 1.91 miles with a maximum of 2.2 per cent grade; a total rise of 1,178.2 ft. and a drop of 144.3 ft., with 635 deg. of curvature on the up-hill grade and 66 deg. down-hill. The average traffic for the years 1912 and 1913, which is made the basis of calculations, was 1,342½ passenger trains in each direction, and the average weight of the passenger trains, exclusive of locomotives, was 443 tons. Pusher engines were required for 980 of the passenger trains. The weight of the passenger and pusher engines for passenger trains was 175 tons each. There were 1,738½ freight trains in each direction per year; the average weight of the freight trains eastbound, exclusive of locomotives, was 950 tons; and westbound 898 tons. All freight trains had to be pushed in both directions, and the weight of freight locomotives and pushers was 181 tons each. The tonnage eastbound and westbound was as follows:

*Eastbound*

| | | |
|---|---|---|
| 1,342½ | trains @ 443 tons each | 594,727.5 tons |
| 2,322 | locomotives @ 175 tons each | 406,350.0 tons |
| 1,738½ | freight trains @ 950 tons each | 1,651,575.0 tons |
| 3,477 | locomotives @ 181 tons each | 629,237.0 tons |
| | Total | 3,281,889.5 tons |

*Westbound*

| | | |
|---|---|---|
| 1,342½ | trains @ 443 tons each | 594,727.5 tons |
| 2,322 | locomotives @ 175 tons each | 406,350.0 tons |
| 1,738½ | freight trains @ 898 tons each | 1,561,173.0 tons |
| 3,477 | locomotives @ 181 tons each | 629,237.0 tons |
| | Total | 3,191,487.5 tons |

COMPARISON OF COMPARABLE FACTORS AFFECTING THE COST OF OPERATING OVER ROGERS PASS, VIA PRESENT LINE AND VIA TUNNEL LINE, NOW UNDER CONSTRUCTION, AVERAGE TRAFFIC FOR THE YEARS 1912 AND 1913

Eastbound tonnage per year, including weight of engines, 3,281,890 tons.

*Resistance to overcome, on present line*

| | | |
|---|---|---|
| Actual rise, 692.1 ft. | 692.1 ft. | |
| Curve resistance, 1,288 deg. × .04 ft. | 51.5 ft. | |
| Friction resistance, 6.45 mls. × 15 ft. | 96.7 ft. | |
| Total | | 840.3 ft. |

*Resistance to overcome, tunnel line*

| | | |
|---|---|---|
| Actual rise, 144.3 ft. | 144.3 ft. | |
| Curve resistance, 66 deg. × .04 ft. | 2.6 fe. | |
| Friction resistance, 1.91 mls. × 15 ft. | 28.6 ft. | |
| Total | | 175.5 ft. |
| Difference | | 664.8 ft. |

3,281,890 tons × 664.8 ft. equals 2,181,800,472 foot tons.

Westbound tonnage per year, including weight of engines, 3,191,488 tons.

*Resistance to overcome, present line*

| | | |
|---|---|---|
| Actual rise, 1,726 ft. | 1,726.0 ft. | |
| Curve resistance, 1,860 deg. × .04 ft. | 74.4 ft. | |
| Friction resistance, 16.65 mls. × 15 ft. | 249.7 ft. | |
| Total | | 2,050.1 ft. |

*Resistance to overcome, tunnel line*

| | | |
|---|---|---|
| Actual rise, 1,178.2 ft. | 1,178.2 ft. | |
| Curve resistance, 635 deg. × .04 ft. | 25.4 ft. | |
| Friction resistance, 16.77 mls. × 15 ft. | 251.5 ft. | |
| Total | | 1,455.1 ft. |
| Difference | | 595.0 ft. |

3,191,488 tons × 595 ft. equals 1,898,935,360 foot tons.

| | | |
|---|---|---|
| Total work done (extra) | 2,181,800,472 foot tons | |
| | 1,898,935,360 foot tons | |
| Total | | 4,080,735,832 foot tons |

One thousand foot-tons equals approximately 1 horse-power-hour. Assuming that 5 lb. of coal is consumed in doing 1 horse-power-hour of work and that coal on a locomotive costs $4.60 per ton, the saving in fuel will amount to:

$$\frac{4{,}080{,}736 \times 5 \text{ lb.} \times \$4.60}{2{,}000 \text{ lb.}} = \$46{,}928.46$$

Extra wages, train and engine crews.

*Present line*

6,162 trains for 23.1 miles, 142,342.2 train miles.
5,437 push. engs. for 23.1 miles, 125,594.7 push. eng. miles.

*Tunnel Line*

6,162 trains for 18.68 miles, 115,106.2 train miles.
5,437 push. engs. for 13 miles, 70,681.0 push. eng. miles.

Amount saved { 27,236.0 train miles. / 54,913.7 pusher engine miles.

| | |
|---|---|
| 27,236 train miles at 22 cents | $ 5,991.92 |
| 54,913.7 pusher miles at 25 cents | 13,728.40 |
| (25 cents to cover engine crew wages, cost of repairs to pusher locomotives and extra cost of maintenance account of running pushers.) | |
| Extra cost maintenance of way, 4.42 miles at $200 plus 27,236 train miles at 20 cents | 6,331.20 |
| Extra cost of maintenance of way, on account of extra number of degrees of curvature, assuming that 400 deg. of curvature per mile would increase rate at 20 cents per train mile for maintenance by 30 per cent. | |
| 6,162 trains × 2,447 deg. × 1/40 cents | 3,769.60 |
| Special maintenance on account of 4½ miles of snow sheds | 85,000.00 |
| Extra cost of maintenance of equipment 27,236 train miles at 21 cents | 5,719.56 |
| Extra cost of maintenance of equipment, on account of the extra number of degrees of curvature, assuming that 400 deg. of curvature per mile would increase rate of 21 cents per train mile by 40 per cent. | |
| 6,162 trains × 2,447 deg. × 21/1000 cents | 3,166.47 |
| Total annual saving in cost of operation | $170,635.61 |

The rate at which traffic has been increasing would indicate that shortly after the work of constructing the tunnel was completed the traffic would have doubled. In this case, if no further economies were made in methods of operating this section of track, the annual saving on account of operating over the tunnel line would be,

$$\$85{,}635.61 \times 2 \text{ plus } \$85{,}000.00 = \$356{,}271.22$$

In arriving at the above figures no account is taken of whether the line was single or double track, and for comparative figures it was assumed that the methods of operation would be the same. As a matter of fact, the present single-track line with double the present traffic would make the business too congested for economical single-track operation. Therefore, it was apparent that it was time to study the question of double-tracking the present line or seeking a new line for double track. It was decided to double track on the five-mile tunnel location. Now to operate successfully a five-mile tunnel we will require the installation of an electric plant and the purchase of electric locomotives. All the details of the proposed electrification have not as yet been worked out, but even if they were, the reader is not interested in the details of cost. He can see at once that the problem was to find out if the cost of operating and maintaining the tunnel line, taking into account the extra cost of operating on account of having a short section of electric operation and extra cost of maintaining tracks in the tunnel, plus the interest on the cost of building the new double-track line, including the cost of electrifying the tunnel, would be less than the cost of operating and maintaining a double-track line on the present location plus the interest on the cost of building the second track. The figures would not have been very decisive one way or the other were it not for the fact that there is now 4½ miles of wooden snow sheds on the present location which will be all eliminated on the new location. The maintenance and costs of renewals of these sheds amounts to between $85,000 and $100,000 per year. To maintain and renew a double-track wooden shed would probably cost at least 50 per cent more than the above, so that with a saving of about $125,000 per year in maintenance and renewals of snow sheds and a calculated saving in operation and maintenance of $171,271.22 on a traffic that surely will be reached in the near future, there was no doubt as to the proper course to pursue.

## FUEL ECONOMY ON THE GREAT WESTERN

The Chicago Great Western in effecting economies in fuel has attempted to consider every phase of the subject. The most economical fuel is determined from analyses and the results obtained from actual tests and the prices quoted, all being reduced to show the cost per ton-mile. An analysis once agreed on and made a matter of contract is not permitted to become a dead letter. The coal from each shipper is carefully sampled about twice a month and sent to the railroad company's laboratory for analysis. The aim is to contract for the fuel for each division

P. 10-11. 15-M. FORM 1481.

**CHICAGO GREAT WESTERN RAILROAD COMPANY.**

ENGINE 705 ON West BOUND ~~PASSG'R~~ FREIGHT TRAIN WHICH

*PASSED MILE POST 78 } ABOUT 8:10 A.M. May 2nd 1914
*MET ____ }

‖WAS EMITTING BLACK SMOKE { BETWEEN M. P. ____ AND M. P. ____
‖~~WAS POPPING OFF~~ { AT (STATION) ____

WHEN PASSED BY TRAIN ____ ENGINE ____ AT ____ M

____ 191__

(SIGNED) Jno. Brown,
Section Foreman

*FILL OUT ONLY THE LINE WHICH GIVES THE MOST DIRECT INFORMATION.
‖DRAW PENCIL THROUGH LINE NOT REFERRED TO.

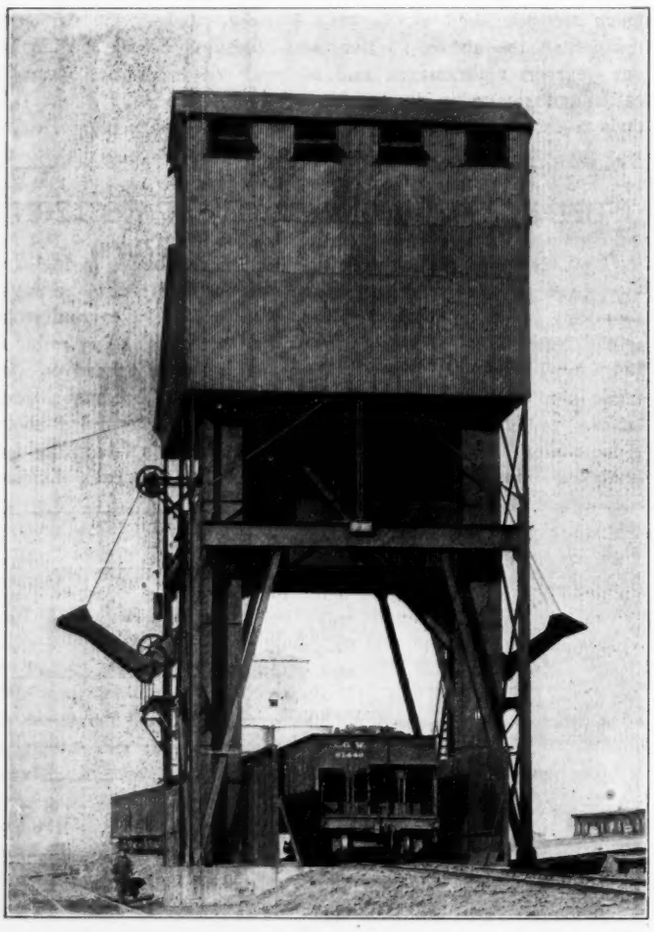
**Post Card for Reporting Excessive Smoke and Popping of Locomotives**

from one mine in order that the engineers and firemen on that division may become familiar with the fuel and therefore be better able to get the best possible results from it. This is an important feature, and is appreciated by the engine crews.

Each superintendent employs a field inspector who puts in all of his time at the mine, carefully watching the preparation of the coal. After the coal is received at the point of consumption, a certain number of cars are examined each week by the division superintendent himself, or by some of his subordinates, and any items of unsatisfactory preparation are taken up with the shippers

and with the superintendent's own inspector at the mine. Each division is required to check-weigh a certain number of cars each week and report the result to the general manager. The monthly performance of each fuel station is recorded in the general manager's office on the form here reproduced, which shows in detail the results of operation. The type of cars in which the coal is delivered is included in the form so that the general manager may know that the coal is being delivered in the right kind of cars for each particular station. Excessive costs for handling may be readily noted also, and indicate where investigations are necessary.

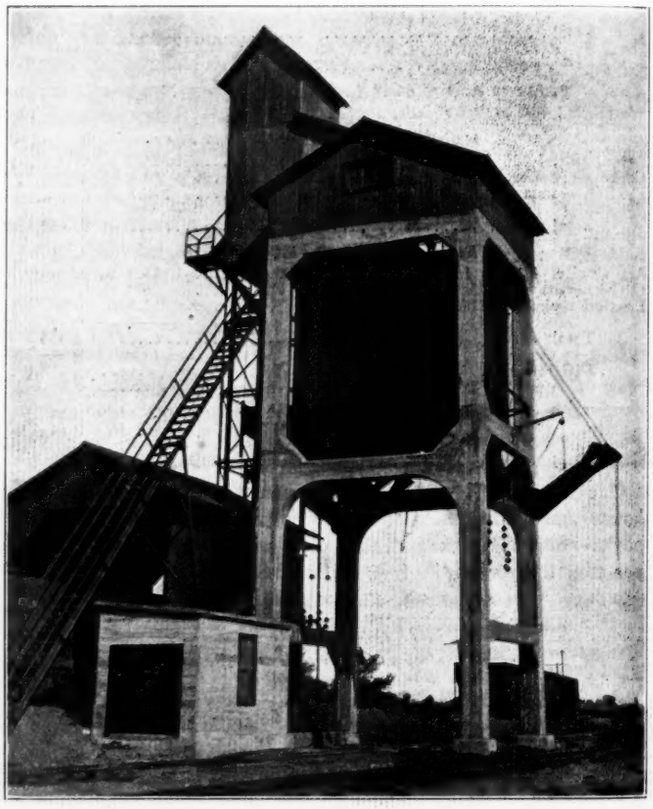
Within the past five years modern coaling stations have been erected at 12 points of greatest fuel consumption, and by their use the cost of handling has been reduced from an average ranging between 9 and 12 cents per ton to an average ranging from 2 to 4 cents. Illustrations of the coaling stations at Sycamore, Ill., and Carroll, Iowa, are shown. The new coaling stations are all equipped with scales so that the amount of coal delivered to each engine may be determined. These scales have given very satisfactory service; they are tested regularly by the scale inspector and are carefully maintained. An automatic device is used for recording the weights on two coal tickets, one for the



**Chicago, Great Western Coaling Station at Sycamore, Ill.**

engineman and one for the station attendant. Recognizing that fuel is one of the largest items in the cost of transportation, a systematic programme is being followed out as to equipping engines with superheaters and brick arches to reduce fuel consumption. At the present time the company has 71 engines equipped with superheaters and 224, or over 75 per cent, with arches. Mechanical stokers have not yet been applied, but work has been started to equip some of the heaviest freight engines with them.

A form known as 380, here illustrated, is compiled daily in the train despatcher's office, showing the pounds of coal used by each locomotive for hauling 100 tons one mile. Three separate sheets are used, one for passenger trains, one for through freight trains and one for way freight trains. The form is valuable, not only because it shows the fuel consumption, but also because it shows the percentage of the potential tonnage actually hauled. It records only the performance of individual enginemen and firemen and individual engines while in service. Care is therefore taken not to charge thereon any coal consumed at terminals. When an engine leaves the initial terminal the despatcher is



**Coaling Station of the Chicago, Great Western at Carroll, Iowa**

immediately informed by the engine house foreman of the amount of coal on the tender. As the train progresses the amount of coal taken on at intermediate stations is wired in promptly. At the destination the first duty of the engine house foreman is to advise the despatcher of the amount of coal remaining in the tender, metal measuring strips being applied to all tenders to enable the men to estimate the coal accurately. The despatcher, having already calculated the ton-miles, is able to compute at once the coal consumed per 100 ton-miles, and an explanation is immediately sought when an undue amount of coal has been consumed.

The engineman and fireman may not be responsible for a poor fuel performance. When a high fuel figure is obtained it is the duty of the master mechanic and his assistants to examine the engine carefully for mechanical defects tending to increase fuel consumption. It may be found that the engine has insufficient draft, worn cylinder packing, defective valve rings, etc., and the defect is remedied before the engine is again sent out. The company's policy is to maintain locomotives in first class condition. An engine not in good condition is a fuel waster, an enemy to good train loading and a producer of overtime.

The company has five classes of locomotives in freight service. The tonnage potential (the assigned rating over ruling grades multiplied by the mileage made) and the fuel potential (the pounds of coal required to move 100 tons one mile) have been determined for each class by mathematical calculations, combined

with actual tests conducted by representatives of both the transportation and mechanical departments. These tonnage potentials are reduced for unfavorable weather conditions to:

92 per cent for temperatures between 45 deg. and 25 deg. or heavy winds;
84 per cent for temperatures between 35 deg. and zero;
75 per cent for temperatures below zero.

The officer analyzing form 380 is, of course, familiar with the runs and makes due allowance for the engines on passenger trains making frequent stops as against through trains, and for time freights as against drag freights, etc. The road foreman of engines devotes special attention to men who regularly turn in worse records than their fellow employees in the same class of service. Superintendents issue bulletins each month showing the rank of individual engineers and firemen. The average fuel performance is calculated from these bulletins for the respective divisions, and the divisions as a whole are given a rank according to the results achieved. This produces a friendly spirit of emulation productive of much good.

To guard against the wasting of fuel as indicated by annoying black smoke and popping off the company distributes to the employees in all departments a postal card on which a memorandum is to be made of such instances observed. This is mailed to the division superintendent, who promptly does what is necessary to bring about improvement. It is well understood that this form is not to be used by employees for the purpose of getting their fellow workmen into difficulties, and, as a matter of fact, it is not used in this spirit.

PERFORMANCE OF FUEL STATIONS ON_____DIVISION, MONTH OF_____

| STATION | TYPE OF STATION | NUMBER OF CARS RECEIVED | | | | | TONS COAL HANDLED | TOTAL COST ON C. G. W. TRACKS | WAGES OF HANDLERS | *COST OF COAL AND OTHER FUEL | STORES | REPAIRS | TOTAL COST OF OPERATING STATION | COST PER TON | | | | | COST PER TON OF COAL AND HANDLING | DIFFERENCES (IN TONS) BETWEEN INVENTORIES AND BOOKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | COVERED | BOX OR STOCK | HOPPER BOTTOM | DROP BOTTOM | TOTAL | | | | | | | | COAL ON C. G. W. | HANDLING | | | | | |
| | | | | | | | | | | | | | | | LABOR (CENTS) | FUEL (CENTS) | STORES AND REPAIRS (CENTS) | TOTAL (CENTS) | | |
| | | | | | | | | | | | | | | | | | | | | |
| TOTAL THIS YEAR | | | | | | | | | | | | | | | | | | | | |
| TOTAL LAST YEAR | | | | | | | | | | | | | | | | | | | | |

*IN THIS COLUMN PLACE BEFORE EACH AMOUNT A LETTER INDICATING KIND OF FUEL USED, THUS C FOR COAL, D FOR DISTILLATE, E FOR ELECTRICITY; G FOR GASOLINE; O FOR OIL

**Form for Reporting Performance of Fuel Stations**

FORM 380

SAFETY FIRST — SAFETY ALWAYS

CHICAGO GREAT WESTERN RAILROAD COMPANY

TRAIN DISPATCHERS' DAILY REPORT OF TONNAGE AND COAL CONSUMPTION

Eastern DIVISION First and Second DISTRICTS Through Freights DATE July 27th, 1914.

| EAST | ENGINE NO. | ENGINEER | FIREMAN | TONNAGE HANDLED FROM | TONNAGE HANDLED TO | TRAIN MILES | 100 TON MILES | POTENTIAL 100 TON MILES | RATING | % RATING HANDLED | AVG. TONS HANDLED | POUNDS COAL CONSUMED | POUNDS COAL PER 100 TON MILES | Potential Pounds Coal Per 100 Ton Miles | TIME IN SERVICE HRS. | TIME IN SERVICE MIN. | WEATHER | REMARKS *SEE FOOT NOTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 74 | 706 | Foster | Jonsen | Oelwein | E.Stockton | 116.7 | 1972 | 1983 | 1700 | .994 | 1690 | 27840 | 14.11 | 11 | 7 | 30 | 100% | |
| 60 | 356 | C.P.Smith | Murphy | " | " | 116.7 | 1622 | 1633 | 1400 | .992 | 1389 | 24140 | 14.90 | 15 | 8 | 55 | " | |
| Ex | 600 | Conrow | Sullivan | " | " | 116.7 | 2741 | 2334 | 2000 | 1.174 | 2349 | 35660 | 13.00 | 13 | 10 | 45 | " | |
| Ex | 601 | Payton | Bradfield | " | " | 116.7 | 2636 | 2334 | 2000 | 1.129 | 2259 | 36120 | 13.69 | 13 | 8 | 15 | " | |
| 72 | 702 | Wells | Ronan | E.Stockton | Chgo Tfr | 121.8 | 3174 | 3167 | 2600 | 1.002 | 2606 | 35000 | 11.02 | 11 | 7 | 30 | " | |
| Ex | 339 | Lyons | Brown | " | " | 121.8 | 2450 | 2680 | 2200 | .913 | 2009 | 31000 | 12.65 | 15 | 7 | 10 | " | |
| Ex | 709 | Tolmage | Hyland | " | " | 121.8 | 2917 | 3167 | 2600 | .920 | 2391 | 32000 | 10.98 | 11 | 7 | 40 | " | |
| TOTAL | | | | | | 832.2 | 17512 | 17298 | 14500 | 7.124 | 14693 | 221760 | | | | | | |
| WEST | | | | | | | | | | | | | | | | | | |
| 61 | 703 | Hinman | Riplogle | Chgo Tfr | E.Stockton | 121.8 | 2619 | 2680 | 2200 | .977 | 2150 | 30000 | 11.45 | 11 | 6 | 40 | " | |
| Ex | 701 | Meehan | Nelson | " | " | 121.8 | 2708 | 2680 | 2200 | 1.010 | 2224 | 30000 | 11.07 | 11 | 6 | 25 | " | |
| Ex | 320 | Fuller F. | Hyland | " | " | 121.8 | 2445 | 2192 | 1800 | 1.115 | 2008 | 28000 | 11.45 | 11 | 8 | 45 | " | |
| Ex | 708 | Fuller W. | Davis | " | " | 121.8 | 2747 | 2680 | 2200 | 1.025 | 2255 | 27100 | 9.86 | 11 | 7 | 00 | " | |
| 71 | 704 | Conrow | Heitter | E.Stockton | Oelwein | 116.7 | 2274 | 2205 | 1890 | 1.037 | 1960 | 24540 | 10.80 | 11 | 6 | 45 | " | |
| 63 | 602 | Ayers | Keely | " | " | 116.7 | 2850 | 2800 | 2400 | 1.017 | 2442 | 34760 | 12.19 | 13 | 12 | 25 | " | |
| Ex | 700 | Shabosky | Reynolds | " | " | 116.7 | 2436 | 2205 | 1890 | 1.111 | 2100 | 27240 | 11.18 | 11 | 7 | 10 | " | |
| Ex | 608 | Johnson | Batzel | " | " | 116.7 | 2617 | 2800 | 2400 | .935 | 2243 | 37880 | 14.47 | 13 | 9 | 05 | " | |
| TOTAL | | | | | | 956.0 | 20696 | 20242 | 16980 | 8.227 | 17362 | 239520 | | | | | | |
| GRAND TOTAL | | | | | | 1788.2 | 38208 | 37540 | 31480 | 15.351 | 32075 | 461280 | | | | | | |

DISPATCHERS

*IN THE REMARKS COLUMN GIVE EXPLANATION OF KNOWN CAUSE WHEN MORE THAN NORMAL AMOUNT OF COAL HAS BEEN CONSUMED.

**Despatcher's Report for Showing Tonnage and Fuel Consumption**

# Western Engineers' and Firemen's Arbitration

## Consideration of Railroads Side of the Case, Including Accurate Data as to Increased Cost Due to Demands

D. H. Bremerman, of the Chicago, Burlington & Quincy, was the principal witness for the railroads at last week's hearing before the board of arbitration in Chicago on the engineers' and firemen's demands. Mr. Bremerman testified regarding present schedule provisions in the East, West and Southeast, as compared with the demands made by the western engineers and firemen, to show that, although they already are more highly compensated in the West than in any other part of the country, the western engineers and firemen are demanding changes which virtually pick out the most favorable rules on some individual roads in the territory and ask to have them made of universal application.

In analyzing the men's demands Mr. Bremerman introduced an exhibit comprising 326 pages, 17 in. by 24 in., which compared, first, the present schedule rates and rules for locomotive engineers and firemen on western roads with those on roads in the East and Southeast, and then compared in detail each phase of the 16 articles submitted by the men with the present schedule provisions existing on practically every important railway in the United States.

Eastern passenger and freight engineers, he testified, are practically on a flat basis of pay for all sizes of locomotives, while in the West there is more graduation in rates according to the size of the engine. Passenger engineers in the West receive now from $4.30 a day for engines under 80,000 lb. on drivers to $5 or over on larger engines, against $4.25 on all engines in the East, the western minimum thus being above what is paid for all in the East. Yet the western men demand a new range from $4.50 to $5.60 per day. Freight engineers in the East, he said, receive $4.75 for nearly all sizes of locomotives, whereas western freight engineers now receive from $4.35 for engines under 80,000 lb. to as high as $5.65 on the larger engines, exclusive of Mallets. The men demand from $5 to $6.40. Thus, although already generally on a higher rate than that prevailing in the east, the men demand a new scale in which the minimum would be 25 cents higher, and the maximum from $1.35 to $1.65 higher than is paid in the East under the 1912 award by the eastern arbitration board. Although the men have claimed that they demand nothing which is not granted by some road already, they have simply attempted to show the number of roads that have proposed rules in effect, without reference to their mileage or importance. The railroad exhibit classified the railroads on a mileage basis, and showed that where some of the proposed rules exist they apply often for peculiar reasons of local importance on so small a mileage compared with the total of 140,000 miles of the western roads involved as to be virtually negligible.

Mr. Bremerman occupied the witness stand for three days, Tuesday, Wednesday and Thursday, giving detailed testimony regarding the facts brought out in the exhibit. The 10 per cent differential for way freight service over the through freight rate demanded by the men, he testified, exists only on five per cent of the mileage of the western roads, while time and one-half for overtime in freight and switching service prevails now for no class in transportation service in any section of the United States and would be an entirely new departure. On no railway in any territory is the switching service based on weights on drivers of locomotives as the men demand. The continuous 10-hour day with 30 minutes for lunch under pay was shown to exist on no western road, with the exception of two small terminal companies, all others paying for 10 hours actual work. The 10 per cent differential for way freight service over through freight was shown to exist on only one road, while a 10 per cent differential is generally higher than now exists in any section of the country. The witness also showed the arrangement now made for compensating the increased labor and hazard in mountain service. The men ask for a 10 per cent increase over the proposed valley rate where the grade is 1.8 per cent or over. This now applies on only one road and in limited mountain districts, but the proposal would make it universal. On account of certain local conditions some roads pay differentials as high as 30 per cent for some grades. How cumulative are the men's demands was shown in their demands for narrow-gage service, which would be subject under the proposed articles, not only to a five per cent increase for narrow-gage service, but in some cases also to the 10 per cent increase on account of grades. Only 9 per cent of the western railways now pay for terminal delays in actual minutes as the men demand. Only 8.5 per cent of western roads now pay an arbitrary allowance for preparatory time. Only two roads in the western territory, and none at all in the East or Southeast have the proposed "automatic release" rule, which provides that when a man arrives at a terminal at the end of his run if required to perform any other service a new day automatically begins. The exhibit showed, in fact, a great mass of rules and present schedules which are absolutely contrary to the automatic release principle.

Under the proposed rule dead-heading engine crews would be paid not only the increased rates of pay proposed for the working fireman and engineer of the train, but would receive as well all the extras for incidental services which the men demand be paid to the working crew. Mr. Bremerman showed that only six per cent of the western roads now pay the same rate to dead-heading crews as to the working crews.

Presentation of the facts in the first exhibit was concluded on Thursday and Mr. Bremerman was cross-examined by representatives of the engineers and firemen. Judge Pritchard, chairman of the board of arbitration, asked for an explanation of turn-around service. "If a crew runs out of Chicago 60 miles, turns around and comes back the 60 miles," said J. B. Sheean, counsel for the railroads, "many railways claim that pay for 120 miles is equitable. The men, however, demand pay for 100 miles out and 100 miles back."

W. S. Stone, grand chief engineer of the Brotherhood of Locomotive Engineers, subjected the witness to a severe cross-examination, dwelling upon the scattered portions of mileage in western territory, on which because of local conditions certain rates or rules are in effect, the universal application of which is demanded by the men. "In securing such local variations," asked Mr. Stone, "do the men generally get all they ask for?" "If they don't," rejoined the witness, "I notice they usually come back for more."

What the demands in the way of rates and rules made by the engineers and firemen mean to the railroads in dollars and cents was explained, on January 22, by J. H. Keefe, assistant general manager of the Gulf, Colorado & Santa Fe, who presented figures based on the actual payrolls and the individual time slips of every engineer and fireman on the western roads affected for the month of October, 1913, the month in which the demands were made upon the railways. Each of the railways affected, in order to determine the cost of the men's demands, kept a separate set of accounts for the month. That there might be uniformity in the interpretation placed upon the proposals of the men and to secure the data as to the costs involved in such shape that it could be concentrated into an exhibit for all of the lines, a blank was prepared and sent to the railroads to be used by them in reporting both the expense under the present conditions and what it would have been had the men's proposals been in effect. These forms were introduced as Exhibit 2. Mr. Keefe described in detail the methods used in compiling these figures to show clearly that no arbitrary or radical construction was placed upon the requests of the men. The operating ex-

pense of the roads, he said, would have been increased by $40,888,665 in the fiscal year ending June 30, 1914, had the proposed rates and rules been in effect. For the month of October, 1913, engineers would have received in added compensation $1,759,008 and firemen $1,653,391, while the additional payments for hostlers, motormen and helpers would have brought the total increase for the month up to $3,885,971. This is an increase of 51 per cent. It was admitted that October, 1913, was a period of heavy traffic, but the total increase of $40,000,000 a year was not obtained by multiplying the increase for one month by 12, but by applying the percentages of increase to the actual payments for the year. Of the total increase for the year, Mr. Keefe said, $2,172,110 would have been required to engage additional help to relieve engineers and firemen of work which has always been considered a part of their regular duty, while $38,716,555 would have gone as increased compensation to the men themselves.

Mr. Keefe also presented an exhibit, No. 3, taking up each one of the 16 articles of the men's demands and stating what each would have meant to the roads in money for the month of October, 1913. A synopsis of this exhibit follows:

*Article* 1.—Changing the basis of a day's pay and overtime would bring about an increase of $75,298 or 458.24 per cent in the cost of passenger service, while in the freight service there would be an increase of $222,574 or 54.18 per cent.

*Article* 2.—The increased rates of pay alone would bring about an increase in the passenger service payrolls for engineers and firemen of $158,168 or 9.19 per cent, while in all other classes of service, except passenger and switching service, the increase would be $253,552 or 9.23 per cent. The higher rates of pay for Mallet type locomotives in all classes except switching service would be $25,416 or 29.91 per cent. The application of through freight rates to pusher, helper, mine run, work, wreck, belt and transfer service, and all other unclassified service, would increase the expense of operation $91,808, which is 18.58 per cent above the actual amount paid in the test month for these kinds of service.

An increase of $62,391 or 293.72 per cent would be effected by the demand for a 10 per cent increase over the valley rates on divisions having a grade of 1.8 per cent or greater. In the narrow-gage service, the increase in rates of 5 per cent would amount to a new expense of $1,225. Increases demanded in rates of pay for electric or gasolene motor cars would raise passenger service expenses on these cars from $19,931 to $22,410, an increase of $2,479, or 12.44 per cent. The expenses of electric and gasolene motor cars in all other classes of service except passenger and switching would be increased from $1,249 to $1,456 or $206, or 15.55 per cent.

*Article* 3.—The demands for a greater differential in local or way freight service over the through freight service rates would place upon the railroads affected an additional expense of $46,511. The differential paid for through or irregular freight service because of the requests that engineers and firemen be granted added compensation for performing part of their regular duties would bring about an increase of $78,000 or 319.32 per cent.

*Article* 4.—The increased rates of pay for switching service demanded would cause an increase of $219,453 or 18.02 per cent. The demand for a differential for night work over day work represents a totally new expenditure of $31,617. Another new expenditure is represented by the demand that 10 continuous hours or less shall constitute a day and that overtime thereafter shall be paid for on a basis of time and one-half. The added cost from this source alone would be $168,943. Another totally new expenditure of $42,380 would be caused by the demand that road rates be paid when road engines are used in switching service regardless of the circumstances.

*Article* 5.—The demand for a 30-minute arbitrary preparatory time rule would cause an increase in expenditures for this purpose alone from $19,291 to $410,317 or $391,026, which is equivalent to an advance of 2,026.96 per cent.

*Article* 6.—An increased expenditure of $78,931 or 525.35 per cent would be caused by the proposed requirements for payment for initial terminal delay in passenger service, which represents the added cost to the roads for compensating the engine crews for failure of trains to depart promptly on leaving time. Payment for final terminal delay in passenger service, as proposed, would cause an increase of $54,611 or 410.73 per cent, while in freight service compensation for initial terminal delay would be increased $111,934 or 150.14 per cent, and for final terminal delay in freight service the increase in expenditures would be $75,550 or 198.94 per cent.

*Article* 7.—The greatest single addition to operating expenses is involved in the demand for an "automatic release and tie up" rule. Under this rule, no matter how short the division, when the crew would arrive at the end of its run, it would be automatically released and if used again at all would be considered as starting a new day. A similar rule would apply to using a crew after it had been tied up under the federal hours of service law. This would represent a totally new item of cost amounting to $621,128. The requirement for payment of continuous time when crews are tied up between terminals would effect an increase in payments for this purpose of $28,858 or 1,324.04 per cent.

*Article* 8.—Under the requirement that crews held at other than their home terminals after the expiration of 15 hours shall receive continuous time, the railroads would have to increase these payments for this purpose from $1,492 to $151,307; an increase of $149,815, or 10,038.29 per cent.

*Article* 9.—The proposed new rule as to the basis of pay for dead-heading would mean an increase of $25,722 or 54.75 per cent for this purpose, and for this sum absolutely no productive service would be rendered.

*Article* 10.—If hostlers are placed as the men demand at points where an average of six or more locomotives are handled within 12 hours, there would be an additional expenditure of $25,374 and the increase in rates of pay for hostlers would increase the payroll by $210,603 or 96.22 per cent. In other words, over $25,000 would represent new labor which must be employed, while almost $211,000 would represent the increase in pay to present employees.

*Article* 11.—This article provides that the practice of conducting surprise tests in certain ways shall be eliminated, and involves no additional expense.

*Article* 12.—A totally new expenditure would be involved in complying with the demands that coal be kept where it can be reached by the firemen from the deck of the locomotive where one fireman is employed in freight service, and on all locomotives in passenger service. The new cost would be $59,750.

*Article* 13.—To place two firemen on coal-burning engines of 185,000 pounds or more on drivers, in freight service, the roads would have to increase their payroll for this purpose from $1,575 to $423,896, or 26,811.18 per cent.

*Article* 14.—The increase of $18,826 would be involved in relieving engineers and firemen of duties which they are now required to perform incidentally to their regular labor, in the way of setting up wedges, filling grease cups and cleaning headlights. To relieve the engineers and firemen of other duties in the way of placing tools and supplies on locomotives or removing them therefrom, or filling lubricators, flange oilers, headlights, markers or other lamps, would mean an additional increase of $21,613.

*Article* 15.—This article provides that railroads shall post bulletins showing accurate service weights of locomotives.

*Article* 16.—To relieve engineers and firemen of the duty of throwing switches or flagging would involve an additional expenditure of $80,381, an entirely new item of cost.

The effect of these increases in the various classes of service, Mr. Keefe said, is shown by a comparison of the classes of service. On passenger trains the engineers' proposal would mean an increase for them of 37.5 per cent in compensation, while the firemen would receive a 42 per cent increase—a total for both classes of 39 per cent. In through freight service, the

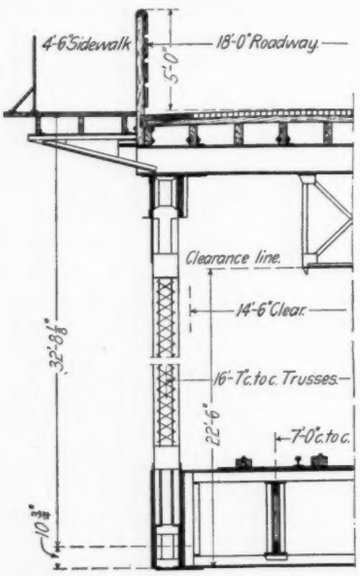
engineers would receive an increase of 41.2 per cent in compensation, while the firemen would receive an 85 per cent increase—a total for both classes of 58.5 per cent.

On locomotives in way freight service the engineers would receive an increase of 56 per cent and the firemen 67 per cent, or a total for both of 60 per cent. In pusher, helper, mine run, gravel, wreck, belt line, transfer and other unclassified service, the engineers' increase in pay would be 31 per cent and that of the fireman 35 per cent, or for both an increase of 33 per cent.

Engineers in switching service would enjoy an increase in compensation of 38 per cent, while the firemen would receive a greater proportion of increase; their advance in wages being 51.5 per cent, or for both classes, 53 per cent. In all classes of service, the increase in pay for engineers would amount to 41 per cent, while the firemen would receive an increase of 61 per cent and hostlers, 108 per cent.

## NEW BRIDGE ACROSS THE MISSISSIPPI RIVER AT KEOKUK

The Keokuk & Hamilton Bridge Company has let a contract to the Stroebel Steel Construction Company for the construction of a new bridge to replace its present structure across the Mississippi river at Keokuk, Iowa, at an estimated cost of $325,000. The new structure will consist of a draw span 377 ft.

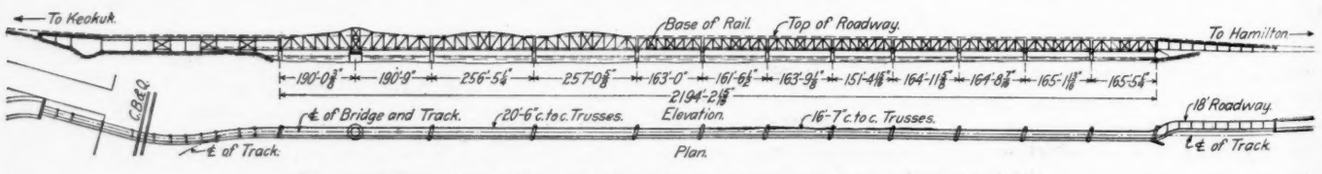



**Half Section Showing Relation of Two Decks**

1½ in. long, two spans 254 ft. 5¼ in., one 160 ft. 5¼ in., one 159 ft. 4⅛ in., one 161 ft. 4⅝ in., one 148 ft. 11⅞ in., and four spans 162 ft. 8⅜ in. long, the total length of the main structure is 2,194 ft. 3 in. In addition there will be steel approaches for the upper deck at each end.

The old structure, which was built in 1869, carried both railway and highway traffic on the one deck, the Toledo, Peoria & Western and the Wabash reaching Keokuk over this structure. This structure had become too light for the present traffic. In designing the new bridge the highway and railway traffic is separated and the highway placed on an upper deck. The new structure is designed for Cooper's E-50 loading with the highway deck designed to carry a 20-ton motor truck. As shown in the drawing, this structure is designed as a through bridge for the lower tracks and as a deck structure for the highway. The upper level will provide for an 18-ft. roadway, while a 4 ft. 6 in. sidewalk will be carried by cantilever supports on the downstream side. The roadway will be paved with wood blocks carried on 3-in. tongue-and-grooved planks protected from the engine exhaust on the lower level by galvanized iron plates.

This bridge will be built on the site of the old structure with only slight modifications of the piers. It is expected that the work will be completed during this year. This structure has been designed and will be built under the direction of Modjeski & Angier, consulting engineers, Chicago.




**Plan and Elevation of New Bridge Across the Mississippi at Keokuk, Iowa**

## A STANDARD HOME ROUTE CARD FOR FREIGHT CARS

BY J. E. CAMPBELL
Freight Agent, Pittsburgh & Lake Erie.

Formerly the duties of the superintendent of transportation or of the officer performing the duties which are usually performed by the person holding that title, were but little more than those of a car accountant. The work was largely of a clerical nature, and had no great bearing on the success and prosperity of his road. Conditions have changed, and now this officer is one of the most important on the modern railroad. The problems with which he is required to deal at different times or under different conditions vary greatly. During prosperous times the great problem is to furnish sufficient and proper equipment to meet the wants of the patrons of the road. In times of depression, however, this problem vanishes and the main question then is how to dispose of surplus equipment and get off the line foreign cars, on which the road is compelled to pay per diem.

During the past year the foreign car question has been one of the most perplexing and troublesome with which the railroads of the United States have had to deal. Under the old system, car hire was paid by mileage. When times of business depression came, cars were side-tracked wherever they might be, and were allowed to remain in storage until such a time as there was a demand for them. This condition was entirely changed under the per diem arrangement, and every line is now anxious to get foreign cars off the road as soon as possible when they are no longer needed, in order to save per diem. They also endeavor to get as many of their own cars on foreign lines as possible, in order that they may earn per diem.

During the past year terminals in all parts of the country have been deluged with empty cars, which were returned empty for movement home. Under normal conditions, the empty car mileage of this country is about 33⅓ per cent of the total movement. This mileage undoubtedly has been 10 or 15 per cent greater during the past year. Some of the more important systems have taken advantage of car service rule 3-B, and have refused to receive their own cars except at the junction at which they were delivered. This has often compelled other lines to haul these cars hundreds of miles and pay per diem on them for some weeks before they could be finally returned to the owners. The spectacle has been witnessed continually during the past few months of empty cars belonging to the southern lines whose terminals are at the Virginia and Ohio river gateways moving north and west toward Cleveland and Chicago, while cars belonging to the western lines have been moving empty to

the eastern seaboard and southeastern gateways. Many of these cars are hauled hundreds of miles in the opposite direction from home in order to be returned home via the routes which they had traveled under load.

At the time the American Railway Association discontinued its car performance bulletins in November, the surplus cars of the country were hovering about the quarter-million mark. If the number of cars which were in transit for home could have been added to this number, the actual surplus probably would have been twice that number. As the surplus increased during the months of November and December, 1914, it is reasonable to believe that about 25 per cent of the entire freight equipment of the country is idle.

The problem of the foreign car is largely one of how to reduce empty mileage and equalize per diem. Per diem adds nothing to the total income of the railroads of the country. A credit in favor of one road is a debit against another road. The road with the most enterprising officials, from superintendent of car service down to yardmasters, and wide-awake employees in all departments, will come out ahead with the balance on the right side of the ledger for car hire. Under present conditions, the road with the more efficient officials in its operating department will have a decided advantage over the road which is weak in that direction.

Various plans have been suggested for handling surplus equipment. It has been proposed to pool a certain proportion of the cars of the various lines and store surplus cars until such time as needed. Per diem then would cease while cars were in storage. This arrangement has been carried out in some instances between connecting lines with special equipment. The plan, however, presents many difficulties in its practical application. The most plausible solution of the problem seems to be a standard home route card which shall be adopted by all of the railroads of the country and a system of short-routing cars home. This, of course, would mean the waiving of car service rule 3-B. Many individual lines have their own systems of home route cards in use, which have been productive of great benefit in times of depression when there was a surplus of cars. These various systems have been neglected in times of prosperity, and much inconvenience is experienced when times again become dull, and it is necessary to dispose of surplus equipment. Last spring, when cars began to accumulate throughout the country, one of the eastern trunk lines had 2,000 foreign cars in one yard which had been sent there from all over the system without any definite information as to how they should be routed home. In order to dispose of these cars it was necessary to haul many of them several hundred miles empty, and it required much clerical labor and a whole month of time to clear up this surplus. Home route cards have usually failed of their purpose through the roads becoming negligent in carrying out instructions governing their use. However, rules governing the use of these cards have been enforced vigorously during the past year, and it is safe to say that every road is in better shape at the present time than for a long time past.

Last August the New York Central Lines adopted a standard home route card, which, if adopted by all roads, and with liberal short-routing rules, would greatly reduce empty mileage and simplify the whole question. The card which has been adopted as a standard by these lines is a yellow card, 3⅞ in. by 10 in. in size. On its face is the proper heading and the name of the road issuing it, underneath which are the spaces for the car number and initials. The rest of the card is ruled off in blank spaces, numbered from 1 to 10 consecutively. On the reverse side are 14 more blank spaces, also numbered consecutively 11 to 24, inclusive. When a foreign car is first received by a road a party to this system, one of these cards is issued and the junction agent stamps in the first space the name of the receiving road, the junction point and the date. Dating stamps are provided for each interchange point for this purpose.

The card is then attached to the waybill, card or revenue, and it accompanies the car on each movement it makes while on the road. When the car passes to a second road, party to the arrangement, that road applies its stamp in the next space, and so on, in case the car should pass to a number of different roads, all parties to the arrangement. If the car is returned via the same route, the agent of the receiving line on its return applies a stamp in the next blank space just as was done when the car was received on its initial movement. This is done until the car finally reaches the junction at which it was first received from a foreign line. When the car finally reaches the interchange point at which the card was issued and is returned to its owners or to the delivering line, the card is taken up and returned to the car accountant of the issuing road. In case the car goes to a road not a party to the arrangement, the card is held by the agent at the junction point for its return. If it is not returned in a reasonable time (60 or 90 days), the car accountant of the delivering line may order disposal of the card if it is deemed best.

When an empty car is received from a foreign or non-participating line for home and the receiving agent has no card on file, he wires his car accountant for the home route and on receipt of the information issues a card showing the road from which the car was reecived and the date. The car can then be forwarded to the road from which it was received, or if placed for loading will be accompanied by a proper home route card when under load. Cars received by any road a party to this system traveling under home route cards belonging to direct connections, can, if desired, be returned to the owners direct and the cards can be taken up. This should always be done if the home junction involves a shorter haul than to the junction at which the car was received by such a road.

The advantages of the system are numerous. Each car carries with it a full record of its movement while on lines participating in the plan and is given more prompt handling. If all lines were to adopt this card or a similar card, every car would carry with it a full record of its movement from the time it left home until its return; agents and yardmasters would be relieved of the necessity of writing for the home route, and delay and much needless switching at interchange points would be prevented. The car accountant would be relieved of the necessity of looking up home routes on hundreds of cars, and there would be a greater likelihood of cars being loaded in the direction of home in accordance with the car service rules.

Its greatest advantage would be in saving empty mileage if all roads would agree to short-route cars home. As an example of what could be accomplished in this way, let us suppose that an Atlantic Coast Line car is delivered to the Norfolk & Western. The car moves to Shenandoah Junction and is delivered to the Baltimore & Ohio; thence to Columbus; then to the Cleveland, Cincinnati, Chicago & St. Louis, and then to Cleveland; to the Erie road to Youngstown; to the Pennsylvania Lines to Pittsburgh. Under the present arrangement, the only way the car could get home would be via the route by which it came. If short routing was permitted, the car would be delivered to the Baltimore & Ohio at Pittsburgh and moved back direct to Shenandoah Junction. The haul via the Pennsylvania Lines to Youngstown, the Erie to Cleveland and the Big Four to Columbus would be avoided. The Baltimore & Ohio would have a shorter haul to Shenandoah Junction. The saving of empty car mileage that would be effected in time of car surplus would be enormous. The wear and tear of equipment, which is often greater under empty than under loaded movement would also be reduced. Under present rules, it may be necessary actually to haul a car across the continent twice empty, in order to get it home. The flood of empty equipment which has deluged terminals and interchange points in the last few months has resulted in much additional clerical expense to secure records and disposition of cars. This would all be saved with a common-sense home route card adopted by all lines. Much empty mileage would also be saved and great expense in handling empty equipment. Often where the movement is light, empty cars are handled in regular or scheduled trains, but where

there is a heavy movement it is frequently necessary to despatch full trains of empties. On some lines which have important terminals and connections at both ends, it frequently happens that trains of empties are moving in opposite directions at the same time; each train representing additional operating expense.

The rules to make such a system effective should be as few and simple as possible. To weigh it down with details would do much toward defeating its efficiency. No car should be permitted to move loaded or empty except on the home road without a home route card. A failure to comply with this rule should be made a subject for discipline.

The adoption of a standard home route card and a short-routing arrangement by the American Railway Association will do much to remove a serious drain upon the revenues of the railroads of this country.

## ENFORCING THE LAWS AGAINST TRESPASSING

Stricter laws and stricter enforcement for the prevention of trespassing upon railways are urged upon the state legislatures in "The Deadly Toll of Trespass on Railways," a bulletin of the Railway Business Association.

"There were," the bulletin declares, "33,000 persons under 21 years of age killed or injured while trespassing on railways of the United States from 1901 to 1910, enough to make a mile post for every mile around the world."

Progress toward enactment of laws providing effective penalties and toward conviction and sentences for those who wilfully expose themselves to danger is said to be slowly spreading, while loss of life and damage as affecting railways is increasing. France punishes trespassers by fines up to $579 and jail up to a month; Germany, by fines up to $25; Canada by fines up to $50 and imprisonment up to two months. In the United Kingdom persons other than passengers or employees found on railroad property are fined $10 for each offence.

"In the United States laws are few, and even where penalties are prescribed, magistrates hesitate to impose them, as local authorities dislike to feed and lodge convicted tramps." Trespassers, however, "include little children and wage earners living in the vicinity, whose death or disability often leaves families destitute.

"Elevation of track in Chicago was resorted to at an expense of 70 millions, which is expected to reach 150 millions. Trespassers leap over a city ordinance and climb up on to the elevation in their conscientious devotion to the pursuit of being killed and maimed. In three months 339 arrests were made on the elevated right of way of four systems. Only 67 of the offenders were punished.

### LACK OF STATUTES

"Thirty-five states have no laws specifically prohibiting persons walking on railroad right of way. Thirteen states by statute prescribe penalties ranging from $5 fine to 10 days in jail in Maine to $500 fine or one year in jail in New York. These states are New York, Wisconsin, Maine, New Hampshire, New Jersey, Massachusetts, Virginia, Missouri, Rhode Island, Delaware, Georgia, Minnesota and Washington. Missouri has a law which protects the railroad from damage suits, for the purpose of which trespass is a defence for the railroad, but the law in defining the act a trespass for that purpose specifically says "but not otherwise."

Activity on the part of many railroads to lessen the number of fatal accidents on their lines is bearing fruit. The New York Central Lines took the question up with justices of the peace and police court magistrates armed with statistics. Newspapers were urged to give the campaign publicity. Warnings in several languages were posted, while manufacturers and public school teachers were enlisted. The railroad's police department made arrests systematically. During May, June and July, 1914, there were 4,545 arrests and 4,015 convictions. In seven months ended April 30, 1914, there was a reduction in those killed over the corresponding period one year previous from 136 to 98.

"Minors and children, following the example of their elders, flock upon the tracks, engines, cars and turntables and are ground to pieces or crippled for life. Tramps and yeggmen travel around the country in 'side-door Pullmans,' robbing box cars and burning ties, stations, bridges, and timbers, and robbing farmers, country banks, stores and postoffices.

"It would probably cost the states and municipalities less to enforce a law against trespassing, than it does to pick up and bury the dead and care for the cripples."

## BUY A MAXIMUM CAR LOAD

O. C. Smith, superintendent of transportation of the Missouri, Kansas & Texas, has issued the following circular letter addressed to "Mr. Shipper and Consignee, Everywhere, U. S. A.": "According to good authority, 1915 will be accompanied by our old friends, 'Confidence,' 'Prosperity' and 'Opportunity,' and it is our intention, with your assistance, to give them a rousing reception. This seems to be an assured fact, as their baggage has preceded them in the shape of improvements in many ways all over the country.

"In the past few months we have heard a lot of talk about 'Buy a Bale of Cotton.' Many bales have been bought and much has been done throughout the South, as well as the North, to relieve the situation. It is a good work. We wish to start the slogan 'Buy a Maximum Car Load,' whether it be coal, lumber or whatever commodity you are dealing in.

"In the eastern rate case it was determined that only 58 per cent of the capacity of cars are used for tonnage that could be handled in the average car. In the West this average, no doubt, is even less.

"From a bulletin sent out by the traffic committee of the Lumber Association, of Chicago, I quote the following: 'The importance of heavier loading is being shown more and more, particularly with the new financial difficulties with which the carriers have to contend. Increasing your loading 25 per cent per car will increase the carriers' revenue the same amount and will not increase the operating expense over 5 per cent. That makes a 20 per cent increase in earning, which is just four times as much as the 5 per cent advance asked for. Bear that in mind whenever possible and load heavily; talk heavy loading to mill men as well as customers, and soon lumber will show a big increase.'

"The railroads have to face (in a bigger way) the same problem that confronts all dealers who have to count on transportation as part of their business. Imagine the fix you would be in, if you should keep on hand during normal and dull times wagons and drivers enough to take care of rush business. How long would your income stay on the right side of the ledger? An increase in the net weight of the car load is just as essential at a time when there is a surplus of cars as when there is a car shortage.

"The Milwaukee Western Fuel Company says, when no cars are to be had, 'You suffer, your customer suffers, we suffer, the railroads suffer.'

"Much is to be gained by all, by shipping and buying a 'Maximum Car Load.'"

Replacing German Goods.—In order to satisfy the demands of the many French inquirers who desire to replace German goods by their British equivalents, the British Chamber of Commerce, Paris, has decided to publish in French a trade index of British manufacturers, merchants, and producers, which will be largely distributed among French firms. After careful consideration, it has been found that this is the most practical method of responding to the demand for British goods in France. The index in question will be confined to firms of undoubted British nationality.

# General News Department

A bill to increase the passenger fare in Arkansas from two to three cents a mile was defeated by an almost unanimous vote, after receiving two readings in the Arkansas House of Representatives on January 15.

The Oklahoma railroads have issued a circular letter to the public giving arguments against a number of anti-railroad bills which have been introduced in the legislature, including the full crew law and the car limit law.

The shops of the Canadian Pacific and the Grand Trunk Pacific at Winnipeg, have orders for making shell jackets for the British government, and it is said that between them they will make thirty millions of these jackets.

The Pennsylvania Railroad announces that at the end of this month the sale of liquors will be discontinued in its restaurants at New York and Philadelphia. This means the end of liquor selling throughout the company's lines, both in stations and on trains.

A bill has been introduced in the Utah legislature forbidding all public officers to use railroad passes. Another bill has been introduced prohibiting the issuance of railroad passes to any person included in the list of those prohibited from using them in the other bill.

The bondholders of the Buffalo & Susquehanna are understood to have made arrangements by which they will continue the operation of that road beyond February 1, the date on which, according to an order of the court, trains were to have been discontinued because of insufficient income.

Representative Henry Brady, of Dallas, Ia., has announced his intention of introducing a bill in the Iowa legislature to repeal the long and short haul law, in order to allow railroads to meet competition regardless of their mileage, without being obliged to make corresponding reductions in the intermediate rates.

In the United States District Court at Memphis, Tenn., January 25, the Illinois Central was held blameless for a collision of one of its trains and a street car, September 17 last, in which 11 persons, passengers on the street car, were killed. The jury also awarded damages of $4,000 to the railroad to reimburse it for damage to its equipment as a result of the wreck. Damage suits aggregating probably $200,000 have grown out of the wreck.

The board of directors of the American Society of Civil Engineers has adopted a resolution and sent it to President Wilson, declaring its opinion that "it would be unfortunate for the present Alaskan Railway Commission to be superseded, and that the interest of the public demands that the present commission be allowed to carry out the construction as well as the location of the proposed line." The commissioners are William C. Edes, Lieutenant Frederick Mears and Thomas Riggs, Jr.

### Index to Classification of Operating Expenses

The Interstate Commerce Commission has issued a pamphlet of 297 pages, containing a very full and apparently complete and useful index to the classification of operating expenses of steam roads as issued by the accounting department of the commission. It is printed in large clear type and in the careful and tasteful manner characteristic of the government printing office. A work of this kind has long been needed. If it has any faults, they can be detected only by using the book; but it is safe to say that railroad accounting officers everywhere will welcome the book as a great convenience.

### M. K. & T. Officers Asked to Study Public Relations

President C. E. Schaff of the Missouri, Kansas & Texas has issued the following circular to the officers and agents of the system: "It is desired that constant attention should be given to the question of public relations between the Missouri, Kansas & Texas lines and the communities which they serve. Many disagreements which have occurred in the past were caused for the most part by municipal authorities, town councils, business organizations or individual citizens not having a full understanding of the railroads' position in matters of common interests, or by misunderstanding on the part of the railroads' officers who were not in possession of sufficient information to act with intelligence and judgment.

"It is the desire of the Missouri, Kansas & Texas lines to avoid this, and to keep in intimate touch with matters of state and municipal government, as well as the activities of business organizations, in order that its management may work along co-operative lines with the communities upon which it depends for revenue; and all officers, agents and other representatives are urged to closely follow such matters and to be present at meetings of town councils, trade organizations or citizens so that where railroad questions are involved the company may secure a hearing when propitious for it to do so. Agents and others should keep the heads of their departments informed in matters of local interest in their communities affecting the interests of the Missouri, Kansas & Texas directly or indirectly, and also keep themselves informed through the medium of the local press and forward any articles of interest to the proper officer in charge."

### New Haven Road 92 Per Cent Block Signaled

Another road whose statement of block signal mileage failed to reach us for inclusion in our annual table was the New York, New Haven & Hartford; which road in 1914 increased by nearly a thousand miles the length of line on which the manual system is in force. The statement (miles of road) follows:

| | | |
|---|---|---|
| *Automatic Block Signals* | | |
| Single track | 1.6 | |
| Two or more tracks | 344.6 | |
| | | 346.2 |
| *Non-Automatic* | | |
| Single track | 1,033.8 | |
| Two or more tracks | 388.2 | |
| | | 1,422.0 |
| *Total, both kinds* | | 1,764.4 |
| Total passenger lines operated | | 1,923.6 |

The apparent discrepancy of 3.8 miles in the final total is on account of two sections of four-track road where 2 tracks are automatic and 2 tracks non-automatic.

### Fixed Audible Signals in Place of Hand Motions

In the large freight yard of the Southern Railway at Inman, Ga., near Atlanta, "Klaxon" horns, like those used on automobiles, fixed on posts alongside the track, are used to give signals to the men on long strings of freight cars being pushed over the hump for distribution. In this yard the receiving tracks are about 3,000 ft. long, and to make sure that the signals, to start or to stop or to set back, shall be quickly understood by the engineman and by all of the brakemen, ten Klaxons are distributed at distances of about 300 ft. apart. All of these noise-makers are sounded, simultaneously, by the closing of a circuit in the signal cabin, and the instructions of the man in charge of the switching are thus conveyed in unmistakable terms, simultaneously, to all concerned.

This arrangement is, of course, equally efficient by day or by night and regardless of dense fog or anything which might obscure visual signals.

These signals have been in use since last March, with much satisfaction, and a similar installation is being put in at Finley, the Southern's large new yard near Birmingham, Ala.

### Canadian Northern Track Through to Pacific Coast

The Canadian Northern has laid the last rail on its line from Lake Superior to the Pacific coast, the lines from the east and from the west having been connected January 23, at Basque, a village on the North Thompson river, 200 miles east of Vancouver. It will require three months more to ballast the road-

bed, and the official ceremony of driving a golden spike is expected to take place about May 1. This event marks what may be called the final stage of the picturesque struggle of Sir William Mackenzie and Sir Donald Mann, to expand their group of local lines into a coast-to-coast railway. The enterprise had its birth in 1896, when Donald Mann bought the charter of the Lake Manitoba Railway & Canal Company and, with Mackenzie's assistance, built and operated 125 miles of line between Gladstone, Manitoba, and a point beyond Dauphin. By rapid additions of new and old charters and a vigorous construction policy, the promoters, within eighteen years, gridironed the prairie country with Canadian Northern lines, reached the head of the Great Lakes and finally passed across the ridge of Lake Superior and built lines connecting Toronto, Ottawa, Montreal and Quebec. The Canadian Northern lines of today reach practically all of the important traffic-producing centers in the Dominion.

### The Engineering Foundation

At a meeting held in the Engineering Societies building, New York, last Wednesday evening, the Engineering Foundation was inaugurated and it was announced that Ambrose Swasey, designer and builder of the Lick, Yerkes and United States Naval Observatory telescopes, and an engineer, scientist and astronomer of distinction, had given $200,000 to promote engineering research.

Mr. Swasey is a member of the firm of Warner & Swasey, Cleveland, machine tool builders and manufacturers of telescopes, in which branch they are among the largest in the world. Mr. Swasey is 69 years old, a past president of the American Society of Mechanical Engineers and of the Cleveland Engineering Society, a member of the Institution of Mechanical Engineers of Great Britain and of the British Astronomical Society. He is a Fellow of the Royal Astronomical Society. In 1900 he received from the French government the decoration of the Legion of Honor for his work on astronomical instruments.

The administration of the fund will be conducted by the Engineering Foundation Board elected by the trustees of the United Engineering Society, and composed of nine members from the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Institute of Mining Engineers, and the American Society of Electrical Engineers, with two members to be chosen at large.

### American Wood Preservers' Association

At the closing session of the American Wood Preservers' Association convention, held at Chicago on Thursday afternoon of last week, officers were elected as follows: President, J. H. Waterman, superintendent timber preservation, Chicago, Burlington & Quincy, Galesburg, Ill.; first vice-president, H. S. Loud, chief engineer, United States Wood Preserving Company, New York; second vice-president, Lowrie Smith, superintendent tie plants, Northern Pacific, Brainerd, Minn.; third vice-president, F. D. Beal, superintendent, St. Helens Creosoting Company, Portland, Ore.; secretary-treasurer, F. J. Angier (re-elected), superintendent timber preservation, Baltimore & Ohio, Baltimore, Md. Members of executive committee are as follows: George E. Rex, superintendent timber preservation, Atchison, Topeka & Santa Fe, Topeka, Kan.; G. M. Davidson, engineer of tests, Chicago & North Western, Chicago; J. B. Card, manager, Chicago Creosoting Company, Chicago; John Foley, forester, Pennsylvania Railroad, Philadelphia; E. A. Sterling, forest and timber engineer, Philadelphia, and C. M. Taylor, superintendent of treating plants, Philadelphia & Reading, Port Reading, N. J.

### American Society of Civil Engineers

At the sixty-second annual meeting of the American Society of Civil Engineers, held on January 20, in New York, the following officers were elected: President, Prof. Charles D. Marx; vice-presidents, Daniel Bontecou and Clemens Herschel; treasurer, Lincoln Bush; directors, J. V. Davies, G. A. Harwood, J. E. Greiner, J. F. Coleman, J. B. Hawley and H. S. Crocker. The annual convention is to be held in San Francisco on September 15.

### The Traffic Club of New York

At the January meeting of the Traffic Club of New York to be held at the Hotel Astor, on Friday evening, January 29, Martin B. Madden, Congressman from Illinois, will address the club on the subject of the Panama Canal. Woods Hutchinson will also address the club on the same evening.

## MEETINGS AND CONVENTIONS

*The following list gives the names of secretaries, dates of next or regular meetings, and places of meeting of those associations which will meet during the next three months. Hereafter the full list of meetings and conventions will be published only in the first issue of the Railway Age Gazette for each month.*

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next meeting, March 2-3, San Francisco, Cal.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 16-18, 1915, Chicago.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. W. Hunt, 220 W. 57th St., New York, Regular meetings, 1st and 3d Wednesday in month, except June, July and August, 220 W. 57th St., New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 11 Broadway, New York. Regular meetings, 2d Thursday in month, at 2 P. M., 11 Broadway, New York.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual Meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawler Ave., Chicago. Regular meetings, 2d Monday in month, except July and August, Lytton Bldg., Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meetings, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Next convention; March 15-19, 1915, Chicago.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings monthly.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill. Regular meetings, 2d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Friday in month, Kansas City.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Times Bldg., Bethlehem, Pa. Next meeting, March 15, 1915, Chicago.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. F. Rowland, Hotel Utah Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Candler Bldg., Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEWARK.—John J. Kautzmann, P. O. Box 238, Newark, N. J. Regular meetings, 1st Monday in month, except July and August, The Washington, Newark.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie R. R., Pittsburgh, Pa. Meetings bimonthly, Pittsburgh. Annual meeting, 2d Monday in June.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, L. S. & M. S., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings.

# Traffic News

The railways west of Chicago are planning to file tariffs with the Interstate Commerce Commission about February 1, advancing interstate passenger fares to a basis of approximately 2½ cents a mile.

The Rocky Mountain National Park, in Colorado, is to be established, by virtue of a law which has just been passed by Congress. This will be the seventh large national park and will have an area of 230,000 acres. The six national parks already established are said to have had in the past year about 250,000 visitors.

The Seaboard Air Line has made an arrangement with the Atlanta, Birmingham & Atlantic by which S. A. L. passenger trains, two each way daily, except Sunday, will be run through between Savannah, Ga., and Brunswick, 87 miles. The junction is at Thalman; from there east to Brunswick by the A. B. & A., the distance is 21 miles.

The Atchison, Topeka & Santa Fe last week lifted its embargo on export grain for shipment through the port of Galveston, Tex., which has been in effect since December 10. When the embargo was lifted there were about 2,500 cars on the tracks near Galveston, which will be rushed into the city as fast as the ships can take the grain.

The Atchison, Topeka & Santa Fe has announced that a new passenger train will be put in service on February 7, between Chicago and Los Angeles and San Francisco, to be known as the "Missionary." On the same date a new train will be put on between New Orleans and California, to be known as the "California Special," running over the Frisco lines from New Orleans to Houston.

The University of Illinois has announced a short course of two weeks on the diseases of plants as related to their keeping quality during transportation and storage, to be given under the personal supervision of Dr. F. L. Stevens, professor of plant pathology, assisted by George L. Peltier, pathologist of the university department of horticulture. The course will begin on February 8, and close February 20.

The committee of representatives of western state railway commissions that is making preparations for opposing the proposed advances in freight rates by the western roads at the hearings to begin at Chicago, on February 15, has announced its intention of asking for an extension of time in which to prepare for the case. It is reported that the committee has estimated its expenses as about $30,000 for the preliminary preparations and about $45,000 more for the completion of the case should the commission grant the extended time.

The Pennsylvania Railroad, in a leaflet issued to inform the public concerning the company's efforts to safeguard the health of passengers, tells of some of the rules prescribed for this purpose. The water coolers in the passenger cars are sterilized with steam once a week. Water from all sources used by the road is analyzed frequently, 600 analyses having been made in one year. Samples of water are taken from every source of supply and examined at least once every thirty days. The men who handle ice for drinking water wear rubber gloves and do not touch the ice with their hands. In cleaning 22,000 passenger cars (the number at New York in one month) the amount of cotton waste used was 1,700 lb.; of liquid soap 300 gal.; linseed oil soap, 1,380 lb., and the list includes a great lot of other things. The company's passenger cars are fitted with ventilating apparatus which supplies each passenger with 1,000 cubic feet of fresh air each hour, with all windows and doors closed. The ventilating apparatus costs $265 per car, which means $795,000 for the 3,000 steel passenger cars owned by the road. Every person having anything to do with the preparation or serving of food has to undergo a physical examination every 30 days. About 1,100 men are employed in the dining cars and the restaurants of the road. Medical examiners inspect every dining car and every restaurant at least once each month.

# Commission and Court News

## INTERSTATE COMMERCE COMMISSION

The St. Louis Coal Operators' Traffic Bureau has filed a complaint with the Interstate Commerce Commission against the rates on coal shipped to St. Louis from the Illinois bituminous fields.

### Switching Charges at Milwaukee

*Opinion by Commissioner Clark:*

The commission finds that the Chicago, Milwaukee & St. Paul has justified proposed changes in the switching charges applicable in the switching district of Milwaukee, Wis., changing the rate on interstate shipments from $2, $2.50 and $4 per car, dependent upon distance to 1 cent per 100 lb., minimum 60,000 lb. for reciprocal switching; and from $5 and $6 per car to 1½ cents per 100 lb., minimum 60,000 lb., for movements between industries. An analysis of the actual cost of switching charges at Milwaukee shows that the proposed charges are not unreasonable. (32 I. C. C., 509.)

### Rates on Cotton to St. Louis

*St. Louis Cotton Exchange v. Missouri, Kansas & Texas et al. Opinion by Commissioner Harlan:*

The commission finds that the rates on cotton from producing points in Oklahoma to St. Louis are not unreasonable or discriminatory. The record indicates that St. Louis is losing ground as a cotton market. The evidence shows, however, that this is due to changes in economic conditions. Shippers find it better to send their cotton through the ports. By far the greater proportion of cotton received at St. Louis is through cotton which if stopped at all in transit is stopped at that point only to be transferred from car to car. Another cause of the decline is that there has been in the last few years a change in the method of handling. Formerly it was consigned to factors at St. Louis and there sold; now the buying is largely done in the field, the cotton being purchased from the farmer or storekeeper direct and the transaction financed by local banks. (32 I. C. C., 501.)

### Class and Commodity Rates to Salt Lake City and Other Points

*Opinion by the commission:*

It is found that the carriers have justified proposed increased class and commodity rates from Missouri river points and Mississippi river points, Chicago, and intermediate territory on the one hand, and Utah common points on the other. The present class rates, in both directions, and some 210 commodity rates, westbound, as also a few eastbound were prescribed by the commission in *Commercial Club, Traffic Bureau of Salt Lake v. A. T. & S. F.*, the so-called Salt Lake case. They became effective November 15, 1911. The class rates are on the scale per 100 lb., first class, of $2.45 from or to Chicago, $2.27 from or to Mississippi river points, and $1.90 from or to Missouri river points. The respondents have revised the class and commodity rates with a general upward trend. The first-class rates to Utah common points will be $2.65 from Chicago, $2.47 from Mississippi river points and $2 from Missouri river points.

The present commodity rates, where not prescribed in the Salt Lake case, are those voluntarily established by the carriers, subject to observance of two alternative clauses, one fixing the Spokane rate as maximum, and the other fixing the Montana common-point rate as maximum. The proposed tariff eliminates these clauses and states the specific rate in each instance. It revises the descriptions and restores differential adjustments from different territories of origin in effect for many years prior to the order in the Salt Lake case, by taking as base the proposed commodity rates from Chicago and adjusting with relation thereto the proposed rates from Mississippi river territory, Peoria, St. Paul, Memphis and Duluth. In this adjustment commodity rates from Chicago to Spokane and Montana common points still operate as maxima to Utah common points,

and rates from Missouri river territory are generally held at 80 per cent of the Chicago rate, following the relation prescribed in the Salt Lake case. (32 I. C. C., 551.)

### Hearing on Spotting Charges

A hearing on the tariffs filed by the railways east of Chicago, imposing a charge for spotting service, was begun before an examiner for the commission at Chicago on Tuesday, January 26. The first witness was Eugene Morris, chairman of the Central Freight Association, who testified regarding the provisions of the tariffs, but declined to be drawn into a discussion as to their interpretation or the reasonableness of the charge, saying he would leave that to the witnesses for the individual roads.

Mr. Morris gave the following definition of spotting service as provided in the tariffs:

"Spotting service is the service beyond a reasonable convenient point of interchange between road haul or connecting carrier and industrial track as defined below and includes:

"(a) One placement of a loaded car which the road haul or connecting carrier has transported, or

"(b) The taking of a loaded car from a particular location in the plant for transportation or road haul by connecting carrier.

"The tracks of an industry which are made use of for an intra-mill service which is a part of the operation of a plant will be considered industrial plant tracks.

"The spotting charge on the loaded car includes the handling of the empty car in the reverse direction."

The proposed charge for spotting service is 5½ cents per ton, net or gross, as classified, of 2,000 pounds or fraction thereof, with a minimum charge of $2 per car.

Mr. Morris was followed by a number of operating officers who testified regarding various local conditions to which the charge would apply.

### The Tap Line Cases

The commission has issued a third supplemental order in the tap line cases, which provides that the maximum allowances or divisions of the through rates fixed in the commission's order of July 29, 1914, shall apply to the tap lines which were dismissed as parties to this proceeding prior to July 29, 1914. Allowances or divisions in conformity therewith may be paid to such tap lines by their respective trunk line connections on shipments moving between May 1, 1912, and the effective dates of the orders respectively dismissing the tap lines from the effect of orders entered prior thereto. The order also modifies that of July 29, 1914, so as to permit trunk lines to make settlement with tap lines named therein, as well as those previously dismissed as parties, on the basis of allowances therein prescribed as maxima. Trunk lines party to the case are required to file with the commission copies of their tariffs showing divisions with each of their tap line connections. Tap lines are required to file their distance tariffs or tables of distances from all shipping points to the junctions with the connecting carriers.

### Hearing on Embargoes

Commissioner Daniels of the Interstate Commerce Commission held a hearing at Chicago on January 20, in a general investigation by the commission of the subject of embargoes. T. M. Bowers appeared as attorney for the commission. Arthur Hale, general agent of the American Railway Association and chairman of the Committee on Relations Between Railroads and of the Arbitration Committee, was the principal witness, and described in a general way the various kinds of embargoes and the necessity for them.

Mr. Hale said that embargoes are necessary because there is no limit to the number of shipments that may be made by anyone anywhere, while the railway facilities are to a certain extent fixed. While it is impossible to improvise delivery sidings the shipper may greatly increase his shipments over night; and an embargo is the best kind of regulation the railroads have been able to work out to prevent congestion. He said the railways do not like embargoes because they cause them to lose revenues, or at least postpone revenues for some time. They are a necessary evil. They represent a measure of self-defense on the part of the railroads against the monopolization of railway facilities by one shipper or class of shippers, and are in the interest of the general public. Some embargoes are precautionary, for the purpose of stopping shipments that cannot be handled, and for the purpose of regulating congestion which the shippers ought to regulate. Mr. Hale said that fully half of the embargoes now in effect are on account of various governmental regulations, such as the embargoes on account of the hoof-and-mouth disease. Some embargoes are caused by floods and accidents; others have been caused on account of the war because certain steamship lines cannot go to certain points. Embargoes also are based on the closing of navigation, but he said the embargoes in which the commission is probably most interested are those on account of accumulations of cars.

Probably from 15 to 20 per cent of the embargoes now in effect are on this account. These occur, he said, when the facilities of the railroads cannot accommodate a sudden increase of traffic, sometimes on account of the disability of connecting railroads or the inadequacy of interchange facilities. Sometimes they are due to the failure of the railroads to make a sufficient charge for the use of their facilities; as, for example, the free storage and demurrage allowed at ports. Facilities that are free are liable to be overtaxed and result in embargoes. Many accumulations of cars arise from the lack of facilities on the part of consignees and because the demurrage rules are imperfect. Mr. Hale said that embargoes are not so frequent as they were prior to 1906, when they were very frequent, but since that time the demurrage rules have been improved and their administration has been improved. It is not unusual, he said, for a big road to put an embargo a week, where it used to be about one every day. "If we could absolutely perfect our demurrage and storage system," he said, "there would be very few embargoes necessary. Many trades that thought they could not regulate their freight found out under the pressure of demurrage rules that they could regulate it better than the railroads could. The railroads used to try to regulate it and often made mistakes."

As to the misuse of embargoes, Mr. Hale said he had known of mistakes being made and had made them himself when he was a superintendent of transportation, but that all roads try to limit embargoes as much as possible. The greatest difficulty is encountered with perishable freight, because one consignee may easily monopolize the facilities and hold refrigerator cars under demurrage for a long time. This, he said, demonstrated that the demurrage rate was too low, so an agreement was reached with the representatives of the perishable fruit trade, providing for an increase in the demurrage rate to $3 for each day after three days, and to $5 for each day after five days. Similar questions arise, he said, in connection with automobile shipments. Cars are sometimes held as long as two months, because it is cheaper to pay $1 a day than to unload and store the freight.

As to giving notice to the Interstate Commerce Commission of embargo notices, Mr. Hale said he saw no reason why roads should not send the commission a copy of every embargo notice, but that it was absolutely impracticable to send prior notice to the commission or to shippers, because it is necessary to act promptly in such cases; and because to notify shipper would result in an immediate overshipment to the points affected, which would vitiate the purpose of the embargo. Moreover, he said, it is impossible to notify everybody. The roads try to notify those most affected.

Mr. Hale's testimony was followed by that of several superintendents of transportation who testified regarding the practices in issuing embargoes on their own roads. It was agreed that there was no objection to filing copies of embargo notices with the Interstate Commerce Commission, but that they would do no good, because in many cases the embargoes would be withdrawn by the time the notice would reach the commission, and that it would be impracticable to give prior notice to the commission or to shippers.

## STATE COMMISSIONS

The Public Utility Commissioners of New Jersey have ordered the Pennsylvania Railroad to restore three passenger trains which were taken off in September. These trains ran between Long Branch, Trenton and Camden.

The Public Service Commission of Pennsylvania, by general order No. 12, forbids the practice, said to have been indulged in by certain public service companies, of sending out written or printed notices to patrons attributing to the commission alleged rulings or orders which have never been made, or which if made, are not correctly quoted. By this unauthorized practice a considerable amount of misunderstanding, confusion and inconvenience has been occasioned. Henceforth, no public service company may send out any such utterance of the commission unless it be printed in full from an official copy.

The Public Utilities Commission of Ohio, on complaint of the American Steel & Wire Company, has decided that the Newburgh & South Shore, the freight belt line serving important industries in the southern part of Cleveland, is a common carrier, and has ordered the railroads which connect with the belt line to cease and desist from eliminating the Newburgh & South Shore as a common carrier when they compute demurrage charges against the Steel & Wire Company and other industries. When these other roads deliver cars to the Belt for placement for loading or unloading the demurrage rules of the Newburgh & South Shore, and no other, must be applied.

The Pennsylvania is contesting the recent order of the New Jersey Board of Public Utility Commissioners requiring the road to restore three seashore trains which it had discontinued. The commission's order will be reviewed by the Supreme Court in certiorari proceedings during the February term of that tribunal. The action of the railroad in appealing to the court will operate as a stay of the order of the board, which was to go into effect this week. The trains taken off (last September) were locals running from Long Branch and other shore resorts to Freehold, Jamesburg, Trenton and Jersey City. According to F. L. Sheppard, general superintendent of the New Jersey division, the running of these trains during the five months which the company did not intend to run them would involve an expenditure of $20,400. He stated that in his opinion this would be an entire loss, as it is not probable that the running of the trains would induce any additional travel.

The Virginia State Corporation Commission declares constitutional the statute passed at the last General Assembly in regard to taxes on cars and engines. Under the old law, the rolling stock tax went to the cities in which are situated the principal state offices of the railroad companies, while under the present decision, the counties, towns and cities traversed by the lines will receive a proportionate share of the total money collected. Every steam and electric line in Virginia is subject to the new ruling, and all were joined as defendants in the action, which was brought by the City of Richmond. The enforcement of the new law will cause Richmond a loss of $266,000 annually. The rolling stock act was passed by the General Assembly in 1914, when it amended and re-enacted the then existing law. The act provides for the distribution among the several counties, cities and towns through which the roads pass, the assessment of rolling stock for taxation in the proportion that the assessed value of the right of way, roadbed, track and all other property, except rolling stock, bears to the total assessed value of such property, except rolling stock. The railroads, while named as defendants, took no part in the proceedings, taking the ground that they are not materially affected. As the rates of assessment are not uniform in the various counties, cities and towns, it is believed that there will be considerable saving to the roads.

### Demurrage in California

The Railroad Commission of California has issued a decision (No. 1994) in the matter of applications for changes in demurrage rules on intrastate traffic, giving its conclusions on numerous questions presented by E. E. Mote, manager of the Pacific Car Demurrage Bureau, on behalf of the carriers, and by certain shippers' organizations.

Mr. Mote proposed that the Reciprocal Demurrage rule be modified in four particulars, namely:

1. That shippers desiring to avail themselves of the privilege of reciprocal rules shall give written orders for all cars wanted for loading.
2. That such orders, in addition to specifying the character of the freight and its destination, should also specify the routing.
3. That when cars are required at an agency station the notice shall be given to the agent at such station, and if required at a non-agency station notice shall be given to the next agent on either side of such non-agency station.
4. That Section "C" of this rule be so amended that carriers may not hereafter be required to notify every shipper, who does not have on file a reciprocal demurrage bond, when applying for cars, of the provision of the reciprocal demurrage rule to relieve it from liability for reciprocal demurrage.

These modifications were all granted except the third. As to this the commission holds that it is entirely practicable for the carrier to transmit the order for the car or cars to the agent at or near the loading point. Moreover, in actual practice, most orders for cars will undoubtedly be placed with the agents at the point of loading or the nearest agency station.

The commission rejected a number of rules proposed by certain organizations which appeared at the hearing, among which was one to amend the holiday rule so as to include all legal holidays, National, State and Municipal; one to extend the free time allowed to load and furnish billings; to extend free time on cars stopped in transit; one to modify the weather rule, eliminating charge for demurrage on each inclement day until final release of car; one calling for notification by first-class letter, instead of by postal-card, and a credit rule providing for the payment by carrier to shipper or consignee of $1.50 for each car loaded or unloaded within the first 24 hours and $3 in case the same car is unloaded and reloaded within the first 24 hours.

It will be noted that no objection was raised to the three-dollars-a-day demurrage rate prevailing in California.

## PERSONNEL OF COMMISSIONS

Joseph B. Eastman has been appointed a member of the Massachusetts Public Service Commission, in place of George W. Anderson, resigned.

Howard N. Ogden, member of the Public Service Commission of West Virginia, died suddenly at his home in Charleston, January 27.

Judge J. A. Guiher of Winterset, Iowa, has been appointed a member of the Board of Railroad Commissioners of Iowa, succeeding N. S. Ketchum, deceased.

Walter Alexander, heretofore district master mechanic of the Chicago, Milwaukee & St. Paul, at Milwaukee, has been appointed a member of the Wisconsin Railroad Commission, succeeding David Harlow.

Henry C. Hall, nominated some time ago to succeed himself as a member of the Interstate Commerce Commission, was confirmed by the Senate, on Tuesday of this week, by a vote of 38 to 13. There was strong opposition to this confirmation, based on criticism of the commission's recent action in authorizing a general increase of freight rates throughout the eastern states.

## COURT NEWS

L. D. Puterbaugh, special commissioner for the supreme court of Illinois, in the controversy between the Illinois Central and the state auditor regarding the method of taxation of the Illinois Central, has filed a report in which he finds that the Illinois Central was assessed by $2,100,000 too much in 1913, and that the road was taxed in an arbitrary way. The state auditor, in January, 1914, made a tax levy against the Illinois Central's charter lines in Illinois which the railroad company protested was arbitrary and discriminatory. The special commissioner was appointed to hear the evidence.

### Condemnation Proceedings—Speculative Damages Disallowed

In North Carolina a railroad company instituted a proceeding for the condemnation of a right of way through the defendant's mill village, on which was its manufacturing plant and cottages occupied by its workmen. The right of way was at a greater distance from the defendant's principal buildings than a pre-existing line. The defendant claimed that its measure of damages was the difference in the value of its entire plant and premises before the taking and afterwards, and that, in determining the difference, the annoyance to its employees by the maintenance of the railroad close to their homes and the danger to their children should be considered, as well as the fact that

such dangers would tend to drive away the better class of operatives, and necessitate the payment of higher wages. The court held that, as the owner of property condemned for a public use is entitled to compensation only to the actual and direct damages which he may sustain, which consist in the actual value of the property taken and the direct physical injuries to the remaining property, the damages claimed by the defendant were too speculative; there being no evidence that the actual operation of its mills was interfered with by the plaintiff's railroad, or that it suffered damages different from others whose land was near the railroad.—Raleigh C. & S. v. Mecklenburg Manufacturing Company, North Carolina Supreme Court, 82 S. E. 5.

### Hours of Service Law—Unavoidable Accident

A railroad company's violation of the federal hours of service law resulted from having to feed the locomotive with impure water from a creek, while the train was being moved over a temporary logging road, causing the injectors, which were in good order, to fail to work properly. In an action for violation of the statute it was held that the delay was the result of an unavoidable accident which could not have been foreseen and prevented by the use of ordinary care, and hence the company was not liable for a penalty.—United States v. Chicago, M. & St. P., 212 Fed. 574.

### Employer Sustained in Excluding Union Men

The Supreme Court of the United States, in a decision by Justice Pitney, handed down January 27, declares unconstitutional the statute of Kansas making it unlawful for any individual or corporation to coerce or influence any person to enter into an agreement not to join or remain a member of a labor organization as a condition of such person securing or continuing in the employment of such individual or corporation. The decision is of the first importance in the labor world. It was in the case of T. B. Coppage, a superintendent of the St. Louis & San Francisco at Scott, Kan., convicted of violating the law in threatening A. R. Hedge, a switchman, with discharge if he did not sign an agreement to withdraw from the Switchmen's Union.

"The court intimates nothing inconsistent with the right of individuals to join labor unions," said Justice Pitney. "Nor is the legitimacy of such organizations questioned, so long as they conform to the laws of the land, as others are required to do. But the individual has no inherent right to join the union and still remain in the employ of one who is unwilling to employ a union man, any more than the same individual has a right to join the union without the consent of that organization.

"Just as labor organizations have the inherent and constitutional right to deny membership to any man who will not agree that during such membership he will not accept or retain employment in company with non-union men, and just as a union man has the constitutional right to decline proffered employment unless the employer will agree not to employ any non-union men, so the employer has the constitutional right to insist that the employees shall refrain from affiliation with the union during the term of the employment. There cannot be one rule of liberty for the labor organization or its members and a different and more restrictive rule for employers.

"The employee's liberty of making contracts does not include a liberty to procure employment from any unwilling employer or without a fair understanding. Nor may the employer be foreclosed by legislation from exercising the same freedom of choice that is accorded to the employee. To ask a man to agree in advance to refrain from affiliation with the union while retaining a certain position of employment is not to ask him to give up any part of his constitutional freedom. He is free to decline the employment on those terms, just as the employer may decline to offer employment on any other; for 'it takes two to make a bargain.' And having accepted employment on those terms the man is still free to join the union when the period of employment expires or, if employed at will, then at any time upon simply quitting the employment. And, if bound by his own agreement to refrain from joining the union during a stated period of employment, he is in no different situation from that which is necessarily incident to contracts in general.

"For constitutional freedom of contract does not mean that a party is to be as free after making the contract as before; he is not free to break it without accountability. Freedom of contract, in the very nature of the thing, can be enjoyed only by being exercised; and each particular exercise of it involves making an engagement which, if fulfilled, prevents for the time any inconsistent course of conduct."

Dissenting opinions were filed by Justices Day, Hughes and Holmes. Justice Day said that this question was up for settlement in fourteen states and that the right of contract had been seriously limited in a number of states for public policy, as, for instance, where miners were not permitted to contract to work longer than eight hours a day. "If an employer could refuse to employ a man for the simple reason that he belonged to a labor union, could he not also demand agreements that an employee should not join the National Guard? . . . Could not the state strike down agreements not to join a certain political party?"

Other laws which, according to Justice Day, are invalidated by today's opinion are those of California, Colorado, Connecticut, Indiana, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Oklahoma, Oregon, Pennsylvania, Wisconsin and Porto Rico.

Justice Pitney, in announcing the majority's opinion, explained that the court did not consider "actual coercion" as beyond the power of the states to prohibit. He declared the decision was not only based on reason, but was supported by the decision of the court several years ago in the Adair case, in which the Federal act of 1898, prohibiting an interstate railroad from discharging an employee because he belonged to a union, was annulled as unconstitutional.

### Decision in Great Northern Hours-of-Service Suit

The United States Circuit Court of Appeals, seventh circuit, in a decision by Judge Baker, concurred in by Judge Seaman and Mack, reversing the district court for the Western district of Wisconsin, in a suit brought by the government against the Great Northern, to recover penalties for violation of the hours-of-service act, holds that the separating of a train into two parts because of a broken coupler or a bursted hose may not be a sufficient excuse for disregarding the rule of the law limiting the working hours of trainmen to sixteen hours, especially if it be shown that there had been a succession of accidents due to those causes.

In this case, the government sought to show that during the three months prior to the accident which caused the delay that led up to the suit, trains had broken in two on the line in question from two to seven times a day, because of the pulling out of draw-bars or the bursting of hose; but the trial court would not admit this testimony. The government claimed that it should not be presumed, in the absence of any proof, that the company's equipment was in good condition; the mere statement that the delay to the train was the result of a pulled out draw-bar should not, by itself, be sufficient excuse for violation of the rule. The lower court refused to accept this view and it is now reversed; and a new trial is ordered.

The report of the decision gives the following details:

"Two train crews of five men each were involved. As the delay in both instances came from substantially identical causes an outline of the story of one train will suffice. This road carries iron ore from Kelly Lake, Minn., to docks at Allouez, near Superior, Wis., a distance of 100 miles. Rails, cars, and engines are of the heaviest types. From mines to docks the grade is slightly downhill. So heavy is the traffic that from 100 to 125 loads are taken in one train, and the trains, following each other less than an hour apart day and night, and progressing at an average speed of little over six miles an hour, usually consume nearly the whole of the 16 permitted hours in making the run.

"On June 18, 1912, the crew of train 1981 began service at 7:45 p. m., and remained on duty for more than 20 consecutive hours. When this train had covered about 70 miles the seventh train ahead of it pulled out some drawbars and broke into five pieces. The cripple and the six intermediate trains were put in on sidings and the crews were relieved. But no siding ahead was available for train 1981. It could not back up, either on account of its weight or obstructing other down trains; it could not cross over to the other main track without blocking the stream of returning empties, and the men in charge were required or permitted to proceed on the main track to destination. Delay in the other instance was caused by the bursting of air hose. . . . ."

# Railway Officers

### Executive, Financial, Legal and Accounting

J. W. Wardlaw has been appointed assistant to president and purchasing agent of the Central Vermont, with office at St. Albans, Vt.

Mrs. Elizabeth T. Bliss has been elected president of the Lake Tahoe Railway & Transportation Company, with headquarters at San Francisco, Cal., succeeding her son, W. D. Bliss, resigned.

B. C. Hightower, chief clerk in the chief accountant's office of the Rock Island Southern at Davenport, Iowa, has been appointed auditor of the Muscatine North & South, with headquarters at Muscatine, Iowa.

I. C. McGee has been appointed assistant treasurer of the Kansas City Southern, with headquarters at Kansas City, Mo., vice C. A. Peabody, assigned to other duties. It was erroneously stated in our issue of January 22 that Mr. McGee was appointed treasurer, succeeding H. Visscher.

The jurisdiction of H. H. Downs, who was chief claim agent of the New York Central & Hudson River, at New York, has been extended to include all of the road in the state of New York, of the consolidated company, the New York Central Railroad, with headquarters at New York.

S. H. Church, assistant secretary of the Pennsylvania Company and the Pittsburgh, Cincinnati, Chicago & St. Louis, at Pittsburgh, Pa., has been elected secretary to succeed S. B. Liggett, deceased, and J. W. Orr, assistant controller, has been promoted to controller to succeed J. W. Renner, retired under the pension rules of the company.

O. H. Nance, secretary, treasurer and auditor of the St. Louis, Brownsville & Mexico at Kingsville, Texas, has been elected president of the Maryland & Pennsylvania, with headquarters at Baltimore, Md., succeeding John W. Brown, resigned. Mr. Nance has been elected also general manager of the Maryland & Pennsylvania Railroad, and president and general manager of the Maryland & Pennsylvania Terminal Company, effective February 1.

Ira A. Place, who was vice-president of the legal department of the New York Central & Hudson River, has been appointed vice-president in charge of the law department, and of the land and tax department of the new consolidated company, the New York Central Railroad, with headquarters at New York. Albert H. Harris, whose appointment as vice-president of the New York Central Railroad has already been announced in these columns, has been appointed also general counsel in general charge of legal matters, with headquarters at New York; and Edward T. Glennon, who was assistant vice-president of the Lake Shore & Michigan Southern, has been appointed assistant vice-president of the new consolidated company, the New York Central, with headquarters at Chicago. Mr. Glennon will have charge of such matters as may be referred to him by the vice-president in charge of the law department or by the general counsel.

### Traffic

H. V. Dinniene has been appointed acting Pacific Coast agent of the Traders Despatch at San Francisco, Cal., vice H. C. Ewing, who has been appointed general agent of the Lehigh Valley at San Francisco.

F. L. Wemple, acting general freight and passenger agent of the Mexico North Western at Ciudad Juárez, Chih., Mexico, has been appointed general freight and passenger agent, with office at Ciudad Juárez.

G. J. Mitchell, commercial agent of the Carolina, Clinchfield & Ohio, has been transferred from Columbia, S. C., to Charlotte, N. C., succeeding J. I. Sabiston, and J. E. Scott has been appointed commercial agent, at Columbia, succeeding Mr. Mitchell.

L. H. Landis has been appointed traffic manager of the Fresno Interurban Railway, with office at San Francisco, Cal. Mr. Landis is also assistant to president and traffic manager of the Tidewater Southern and president and general manager of the San Jose Terminal Railway.

### Operating

Wilbur Oglesby, acting superintendent of the South Georgia, has been appointed superintendent, with office at Quitman, Ga., succeeding Z. W. Oglesby, deceased.

William H. Neff, formerly general superintendent of the St. Louis Southwestern at Tyler, Tex., recently has been appointed general superintendent of the Northwestern Pacific, with headquarters at San Francisco, Cal.

J. W. Roberts, superintendent of car service of the Vandalia Railroad, with office at Terre Haute, Ind., has been promoted to general superintendent of passenger transportation of the Pennsylvania Lines West of Pittsburgh, with office at Pittsburgh, Pa., succeeding Charles Watts, retired under the pension rules of the company.

John M. Daly, whose resignation as general superintendent of transportation of the Illinois Central and the Yazoo & Mississippi Valley, has already been announced in our columns, has been in railway service since 1874. He began railway work as a clerk in the car accountant's office of the Toledo, Peoria & Western, and subsequently was employed consecutively as switchman on that road, clerk for the Wabash, St. Louis & Pacific, the Atchison, Topeka & Santa Fe and the Chicago & North Western, until 1883. He was then for four years car accountant and trainmaster of the Chicago, St. Paul & Kansas City, and from 1887 to 1891, car accountant of the New York, Chicago & St. Louis. Mr. Daly was then with the Illinois Central until May, 1899, successively as car accountant and superintendent of transportation, leaving that road to go to the Delaware, Lackawanna & Western as superintendent of transportation. He was engaged in special work for the Intercolonial Railway of Canada from June, 1901, to December of that year, when he became general manager of the Cape Breton Railway. He returned to the Illinois Central in April, 1902, and was superintendent of transportation until June, 1904; car accountant from the latter date to 1910; superintendent of transportation the next two years, and since 1912, general superintendent of transportation, his jurisdiction also extending over the Yazoo & Mississippi Valley. Mr. Daly now leaves the service of the Illinois Central to engage in other business.

J. M. Daly

## OBITUARY

A. W. Montague, superintendent of terminals of the Houston & Texas Central at Fort Worth, Tex., was shot on January 20, while in his office, by a discharged switchman, and died within a short time.

W. D. Scott, general manager of the Spokane, Portland & Seattle, the Oregon Trunk, the Oregon Electric and the United Railways, died at his home in Portland, Ore., on January 21, aged 56 years.

Lorenzo S. Coffin, formerly a member of the Iowa Board of Railroad Commissioners, died at Fort Dodge, Iowa, on January 17, aged 91 years. Mr. Coffin will be remembered by older railroad men, and especially by the older members of the railway brotherhoods, by reason of his activity, in the early nineties, in the propaganda for the federal safety appliance laws. Later he was an apostle of temperance among railroad men and a promoter of the "white button" movement.

# Equipment and Supplies

## LOCOMOTIVE BUILDING

THE MISSOURI, KANSAS & TEXAS is preparing specifications on a number of locomotives.

## CAR BUILDING

THE ATCHISON, TOPEKA & SANTA FE is in the market for 700 box cars and 500 refrigerator cars.

THE RUSSIAN GOVERNMENT.—A letter from the Imperial Russian consul to the Seattle Chamber of Commerce contains the following statement: "It gives me pleasure to inform you that an order for 15,000 railway cars has been placed by our government with a Seattle company."

## IRON AND STEEL

THE PADUCAH & ILLINOIS ordered 253 tons of steel for several small bridges near Paducah, Ky., from the Kenwood Bridge Company, Chicago.

THE CHICAGO & NORTH WESTERN has ordered 1,050 tons of steel for miscellaneous bridge work for 1915, from the Chicago Bridge & Iron Works.

THE CHICAGO, MILWAUKEE & ST. PAUL has ordered 151 tons of steel for its Clinton street subway, at Milwaukee, Wis., from the Milwaukee Bridge Company.

THE CHICAGO, BURLINGTON & QUINCY has ordered 15,000 tons of rails from the Illinois Steel Company. This order is in addition to one for 15,000 tons placed some time ago with the Colorado Fuel & Iron Company.

## SIGNALING

The Southern Railway has begun the installation of automatic block signals on its line between Pelham, N. C., and Denim, 36 miles, where the line is being double tracked.

RAILWAY CONSTRUCTION IN URUGUAY.—The Uruguayan government is planning to proceed with the construction of a new short line of railway from Tablada, to connect with the already existing line owned by the Uruguayan Central Railway.

STANDARDIZING AUSTRALIAN RAILWAY GAGE.—The conflict in Europe has brought to the front the question of standardizing the gage of the Australian railways, and it is of interest at this time to review some of the points pro and con. In favor of the idea it is said that in case of invasion the present different gages of the various commonwealths would interfere with the speedy transportation of men and supplies and that if retreat should be necessary, it would be almost impossible to move the railway rolling stock to places of safety as was done when the Belgian equipment was sent to the south of France. It is argued, however, that the present would be a bad time to make extensive changes of gage. Great Britain's control of the seas makes invasion of Australia seem unlikely. The service of the Australian railways for the time being, therefore, will be to transport troops to the ports where they will board ships which will carry them to the fields of war. Extensive reconstruction will handicap the service and the carrying of troops and supplies will be done only at great cost and with exasperating delay, and, in addition, even if invasion were possible, reconstruction work would certainly prove a decided disadvantage from the standpoint of the defenders. Opinion is not unanimously in favor of the 4 ft. 8½ in. gage. If that gage were made standard, Australia would perhaps be able to purchase locomotives and cars at short notice, but on the other hand if some other gage were adopted, an enemy attempting to invade Australia possibly at some future time could not use its own equipment without alteration.

# Supply Trade News

Berry Brothers, Detroit, Mich., have recently opened a new branch at Savannah, Ga.

The Asbestos Protected Metal Company has removed its head office from Beaver Falls, Pa., to the First National Bank building, Pittsburgh, Pa.

W. P. Mellon has been appointed railway sales manager of the southeastern district of the Flint Varnish Works, with headquarters in New York.

Samuel Higgins, formerly general manager of the New York, New Haven & Hartford, has been elected president of the Standard Heat & Ventilation Company of New York and Chicago.

L. H. Mesker has recently become associated with the sales department of the Kearney & Trecker Company, Milwaukee, Wis., and will represent that company in Ohio after February 1.

Earl F. Scott has been appointed representative of the Terry Steam Turbine Company, Hartford, Conn., for the state of Georgia. He will have offices at 702 Candler building, Atlanta.

William Bayliss & Co., Ltd., 240-241 Dashwood House, London, England, have been appointed exclusive European sales agents for the Chicago Railway Signal & Supply Company, Chicago.

The directors of the United States Steel Corporation at their meeting on Tuesday passed the dividend of 50 cents a share quarterly on the common stock, after having reduced it from $1.25 a share to 50 cents a share three months ago. The regular dividend on the preferred stock was declared.

David A. Wright, who for several years past has been connected with the Yale & Towne Manufacturing Company, New York, as district manager in the west, has opened an office for himself as manufacturers' agent at 140 South Dearborn street, Chicago, Ill. He will specialize on labor saving and pneumatic machinery, cranes, etc.

M. A. Sherritt, for several years associated with Manning, Maxwell & Moore, Inc., New York, as manager of the company's Philadelphia branch, resigned this position on January 25 to become vice-president and general manager of Sherritt & Stoer Company, Inc., dealers in machine tools and railway and machine shop equipment. The company will occupy its new offices in the Finance building, Philadelphia, on February 1.

William Penn Evans, general inspector for the Baldwin Locomotive Works, died at Philadelphia on January 16. Mr. Evans was born in Bridgeport, Pa., and received his technical education in the Polytechnic College at Philadelphia. His first work was with R. S. Newbold & Son, the Eagle Iron Works, Norristown, Pa. In September, 1872, he left the latter company to accept a position in the drafting department of the Baldwin Locomotive Works, and he continued in the service of that company with the exception of a brief interval, until the time of his death. In 1876 he obtained leave of absence to act as assistant superintendent of the Philadelphia & Reading Terminal at the Centennial Exposition, and in 1879 left the locomotive company to become mechanical engineer on the Missouri, Kansas & Texas at Sedalia, Mo. After one year's service he returned to the Baldwin Locomotive Works, being appointed, in 1885, chief draftsman, which position he held until 1903. In 1904 he was placed in charge of the exhibit of the Baldwin Locomotive Works at the Louisiana Purchase Exposition in St. Louis, and upon his return to Philadelphia at the termination of the exposition was made general night superintendent. In 1905 he was given charge of the exhibit of the Baldwin Locomotive Works at the Lewis & Clark Exposition at Portland, Ore., and when this exhibit was closed was appointed northwestern agent, with headquarters at Portland. He occupied this position until 1910, when he returned to Philadelphia and was appointed general inspector, which position he occupied until the time of his death. Mr. Evans was a member of the American Society of Mechanical Engineers, the Franklin Institute, the Engineers' Club of Philadelphia, and the Historical Society of Pennsylvania.

# Railway Construction

ATHABASCA NORTHERN.—The Canadian parliament has been asked to continue this company's corporate existence, and to grant an extension of time in which to build from Edmonton, Alta., to Athabasca Landing. The provisional directors named at the time of incorporation, in 1905, were F. H. Markey, Montreal, Que.; J. K. McKenzie, Selkirk, Man., O. E. Fleming, Windsor, Ont., and M. Burton, Barrie, Ont.

BRITISH COLUMBIA SOUTHERN.—See Canadian Pacific.

CANADIAN PACIFIC.—This company will apply to the Canadian parliament for an extension of time in which to build the following lines: From a point on the Kleinberg-Sudbury branch between Bolton Junction, Ont., and Palgrave, to a point at or near Campbellville and from Asquith, Sask., north and northwesterly about 20 miles. The following subsidiary lines will also ask for an extension of time in which to build new lines: Manitoba & Northwestern, from a point at or near Theodore, Sask., west to a point between Govan and Lanigan, about 100 miles; South Ontario Pacific, from a point at or near Hamilton, Ont., to a point on the Niagara river, at or near Niagara Falls, Ont., and British Columbia Southern, to build from Michel, B. C., to Kananaskis.

CAROLINA, ATLANTIC & WESTERN.—This company, which completed track laying last year on an extension from Andrews, S. C., south to Charleston, 57 miles, is planning to build another extension, it is said, from Charleston southwest to Savannah, Ga.

CHICAGO, BURLINGTON & QUINCY.—Work on the extension of the Chicago, Burlington & Quincy from Guernsey, Wyo., to Wendover, will be resumed on February 1. All the outfits that were taken off last fall will be put back, and it is expected that this work will be completed during the coming fall. This line will be 8.5 miles long, including three tunnels, the longest being 3,500 ft., and will be carried across the Platte river on a steel girder bridge. It is estimated that the cost of completing this work will be approximately $1,000,000.

FLORIDA ROADS.—Surveys have been made and the right of way is secured, it is said, for a line to be built from Fort Myers, Fla., south along the west coast of Florida via Marco bay and Naples to Everglade, thence east across the southern part of Florida to Miami, on the east coast, about 150 miles. Capitalists of Baltimore, Md., are said to be back of the project.

FLORIDA ROADS (Electric).—Construction work has been started on an electric line, it is said, from Jacksonville, Fla., southwest to Middleburg, about 25 miles. A. W. MacKinlay, general manager and chief engineer, Jacksonville.

HUDSON BAY, PEACE RIVER & PACIFIC.—The Canadian parliament has been asked for an extension of time in which to build this projected line from Winnipeg, Man., to Hudson Bay, thence west to a point on the Pacific coast. Application has been made also to change the name of the company to Winnipeg & Hudson Bay. Lewis & Smellie are solicitors for the company, Winnipeg, Man.

JACKSON & EASTERN.—See Meridian & Memphis.

JELLICO, CAPUCHIN & WESTERN.—According to press reports from Jellico, Tenn., surveys are being made for a 30-mile line, to be built through the mountain section west of Jellico, Tenn. The new line is to be built to open up coal and timber fields, and grading work will be started soon. The names of the incorporators are not given.

KANKAKEE & URBANA TRACTION COMPANY.—An extension of this line from Ludlow, Ill., north is being contemplated. There will be no curves and the maximum grade will be 0.05 per cent. Cuts will amount to about 5,470 cu. yd., and fills to about 43,500 cu. yd. per mile. All grading will be done by company forces. One 70-ft. deck girder will be required. No contracts have been let. T. W. Shelton, Urbana, Ill., is chief engineer.

KETTLE VALLEY.—This company will apply to the Canadian parliament for an extension of time in which to build lines in British Columbia as follows: From Summer creek or One Mile creek to Copper mountain, and to Voiget mining camps; from Vernon to Kelowna via Penticton; extension of branch line to Otter Summit; also to build from a point near Tulameen up the Tulameen river, about 50 miles; from Penticton to Osoyoos lake; from Summer creek to Allison or Princeton, and thence to Granite creek coal sections; from Grand Forks to a point 50 miles up the North Fork of Kettle river; also from Midway to Hedley and from Penticton to Nicola.

MANITOBA & NORTHWESTERN.—See Canadian Pacific.

MERIDIAN & MEMPHIS.—An officer writes that grading work is now under way on the Jackson & Eastern building an extension of the Meridian & Memphis which operates a 32.6-mile line from Meridian, Miss., northwest to Union, where connection is made with the New Orleans, Mobile & Chicago. The extension is being built from Union, Miss., west to Sebastopol, about 13 miles, and the company expects to develop a traffic in lumber and general merchandise. The line will probably be extended later to Carthage, about 30 miles from Union. S. A. Neville, Meridian, Miss., is in charge of the work, and J. M. T. Hamilton is the chief engineer. (February 13, 1914, p. 345.)

MONTANA ROADS.—E. W. Davis, Bozeman, Mont., is raising a bonus for the building of a railroad from Three Forks district up Madison valley to Yellowstone, Mont.

NORWICH, COLCHESTER & HARTFORD TRACTION.—Under this name a company is to be organized in Connecticut, it is said, to build an electric line through Norwich, Bozrah, Lebanon, Colchester and East Hartford. F. Cronin, A. Manning and W. Strickland are interested.

OZARKS RAILWAY.—A new railroad extending from Springfield, Mo., through Mountain Home, Ark., up along the Buffalo river, then south to Little Rock, Ark., 210 miles, is proposed by this company. No contracts have been let. T. J. Murray, Mountain Home, Ark., may be addressed.

PALM BEACH & EVERGLADES.—We are told that this company plans to build a line from a point near West Palm Beach, Fla., west to a point near Lake Okeechobee, thence skirting the shore of the lake to a point on the west shore near Lake Hicpochee, in Desoto county. Construction work is to be started as soon as the necessary arrangements are completed, and the promoters expect that the line will develop a traffic in vegetables and tropical fruits. Charles H. Baker, New York, president. (January 15, page 116.)

PENNSYLVANIA ROADS (Electric).—Residents of Monaca, Pa., will organize a company, it is said, to build an electric line from Monaca south to Coraopolis, about 20 miles. J. W. Reid, D. J. Mitchell, J. J. Allen and H. L. Grimmell, all of Monaca, are said to be interested.

SOUTH ONTARIO PACIFIC.—See Canadian Pacific.

SOUTHERN RAILWAY.—Contracts for grading work in connection with the revision and double tracking of the line from Orange, Va., to Charlottesville, have been let by the Southern Railway, as follows: From Orange to Burnley, 15 miles, to the Morrow Construction Company, Atlanta, and from Burnley to Charlottesville, 13.7 miles; to C. W. Lane & Co., Atlanta. (January 22; page 171.)

SOUTHWESTERN TRACTION & POWER COMPANY (Electric).—Plans are being made for the construction of an electric railroad from New Iberia, La., to St. Martinville, a distance of 10.5 miles, also from Jeanerette, La., through Franklin, Baldwin and Patterson, to Berwich, a distance of 50 miles. No contracts have been let, but it is expected that work will be completed during the present year. W. S. Henning, New Iberia, La., is chief engineer.

TENNESSEE & ALABAMA.—Bids will be asked for building this line about May 1, it is said, from Fayetteville, Tenn., south to Huntsville, Ala., 34 miles. There will be one bridge on the line about 1,000 ft. long. J. E. Hurd, chief engineer, Fayetteville. (December 25, p. 1208.)

VIRGINIA-BLUE RIDGE.—An officer writes that construction work is now being carried out by company forces on the line from Tye River, Va., northwest, via Lowesville to Massies Mill, 22 miles. There will be a number of trestles and one 500-ft. tunnel on the line. J. W. DeWight, president; A. K. Murrell, chief engineer, Tye River. (January 22, p. 171.)

WARREN, JOHNSVILLE & SALINE RIVER.—Work on the five-mile extension of this line from Johnsville, Ark., to Peter's lake, is 50 per cent completed. Grading will amount to approximately 4,000 cu. yd. a mile. The maximum grade will be 1 per cent, and the maximum curvature, 3 deg. There will also be four short bridges on this line.

WEST PENNSYLVANIA TRACTION.—This company will build a seven-mile line, it is said, between Leisenring, Pa., and Uniontown.

WEST VIRGINIA ROADS.—According to press reports the Superior Black Coal Company is developing mines in Lincoln county, W. Va., and has started work on a new railway. The line is to connect the Coal River branch of the Chesapeake & Ohio with the coal lands controlled by the coal company. John Anderson, general manager, Beckley, W. Va.

WINNIPEG & HUDSON BAY.—See Hudson Bay, Peace River & Pacific.

## RAILWAY STRUCTURES

BRIDGEPORT, OKLA.—Bids have been asked by the Chicago, Rock Island & Pacific for the construction of two new pneumatic piers and a through truss bridge for single track, over the South Canadian river, near Bridgeport, Okla. The span will be 200 ft. long and will replace the old bridge which was destroyed by a flood last spring. The old approaches will be used, but will be raised to meet the higher new span. Work is to begin early this spring. The total estimated cost of this improvement will be $200,000.

CHICAGO, ILL.—President Daniel Willard of the Baltimore & Ohio, went to Chicago on Monday and held conferences with the Chicago Railway Terminal Commission and the local industries committee of the city council on the ordinance which the Baltimore & Ohio Chicago Terminal has requested to permit the road to transfer its coach yards to the vicinity of Western avenue and Sixteenth street. The company has made arrangements to sell the land now occupied by its coach yards at Harrison street to the Pennsylvania Company, to be used in connection with the latter's proposed freight terminal. It is expected that as soon as the ordinance is passed preliminary work can begin for the Pennsylvania freight terminal, which must precede the beginning of work on the proposed new Union passenger terminal.

MACON, GA.—A contract which transfers certain lands and makes other grants to the Central of Georgia in consideration of the latter building a union station at Cherry and Fifth streets, in Macon, has been signed by the railroad company, it is said, and the city officers will at once sign the contract. It is expected that work will be started in the near future on the new station. (August 7, p. 269.)

MEMPHIS, TENN.—The Arkansas & Memphis Railway Bridge & Terminal Company has just completed the construction of the piers for its new bridge across the Mississippi river at Memphis, Tenn. Financial arrangements have been completed whereby the Pennsylvania Steel Company, which has the contract for the fabrication and erection of this structure, will proceed at once with its erection. The Arkansas & Memphis Railway Bridge & Terminal Company was incorporated by the Chicago, Rock Island & Pacific; the St. Louis, Iron Mountain & Southern, and the St. Louis Southwestern to build a double track bridge across the Mississippi river to provide an independent entrance into Memphis for these three roads.

MILWAUKEE, WIS.—A small new terminal will be built by the Milwaukee Northern Electric, at Fifth and Wells streets, Milwaukee. The contract for the steel and iron work has been awarded to the Milwaukee Bridge Company, Milwaukee, Wis.

PINE HILL, ALA.—The Gulf, Florida & Alabama has given a contract to the American Bridge Company for building a steel bridge over the Alabama river near Pine Hill. The bridge is to have 12 spans, including a draw span of 292 ft.

TEMPLE, OKLA.—The Chicago, Rock Island & Pacific has awarded a contract to George B. Swift, Chicago, for the construction of a small frame depot at Temple, Okla. Work is to begin at once.

# Railway Financial News

BOSTON & MAINE.—The trustees of the majority stock have sent a bill to the Massachusetts legislature, which when it becomes a law will permit the stockholders of the Boston & Maine and of the leased lines to reorganize or consolidate their properties, and attached to the bill is an outline of the three plans, one of which will be adopted if the bill is passed and the consent of the stockholders is obtained. Two of these plans provide for reorganization or consolidation without receivership, and the third outlines the plan to be followed if the road is put into the hands of receivers. All three plans provide for the merger of the leased lines with the parent company and the reduction of the drain on the parent company of the guaranteed dividends on the leased lines' stock.

CHICAGO, ROCK ISLAND & PACIFIC.—A committee has been formed which asks for proxies for the next meeting of stockholders and for the regular annual meeting of stockholders. This committee consists of Edward W. Sheldon, president of the United States Trust Company, New York; William Woodward, president of the Hanover National Bank, New York; Charles G. Dawes, president of the Central Trust Company of Illinois, and J. Horace Harding, of Charles D. Barney & Co., New York.

CINCINNATI, HAMILTON & DAYTON.—The receivers have brought suit to compel the appointment of a separate receiver for the Cincinnati, Indianapolis & Western, which has been operated as a part of the Cincinnati, Hamilton & Dayton, and its operation, it is claimed, has been at a loss.

DELAWARE, LACKAWANNA & WESTERN.—The company has sold $5,000,000 Morris & Essex 3½ per cent refunding bonds to Kean, Taylor & Company and Robert Winthrop & Co., both of New York. The bonds were sold by the railroad company, it is understood, at a price which will cost the railroad company interest 4.30 per cent. The proceeds of the bond sale will be used to pay in part the $11,577,000 Morris & Essex 7 per cent consolidated bonds when they fall due, the remainder required to retire these bonds being paid from current funds.

NEW JERSEY & PENNSYLVANIA.—The vice-chancellor in the New Jersey court has ordered the sale of the New Jersey & Pennsylvania, which road has not been in operation for a good part of the last two years during its receivership.

NEW YORK CENTRAL RAILROAD.—Wood, Struthers & Company, New York, have made an analysis of the present security for the New York Central refunding and improvement 4½ per cent bonds as affected by the recent consolidation. The analysis is quite comprehensive, including a consideration of the lien, earnings, surplus and income from investment.

OZARK VALLEY RAILROAD.—This is the name of a new corporation which has taken over the property of the Williamsville, Greenville & St. Louis, which runs from Williamsville, on the St. Louis, Iron Mountain & Southern, northeast through Wayne county, 35 miles. The new company is incorporated for $350,000.

PENNSYLVANIA RAILROAD.—Kuhn, Loeb & Company, New York, have bought $49,000,000 consolidated (now first) mortgage 4½ per cent bonds of the Pennsylvania. The bonds are to be offered publicly at a price expected to be about 103, and the bonds sold on the curb when issued at prices from 105 to 105⅞.

WABASH.—The joint protective committee syndicate has bought $1,545,000 receiver's certificates to provide for the payment of maturing equipment notes.

WILLIAMSVILLE, GREENVILLE & ST. LOUIS.—See Ozark Valley Railroad.

RUSSIA ESTABLISHES DIRECT RAILWAY SERVICE WITH GALICIA.—The Russian government has established a direct passenger and freight service connecting all the Russian railways with Lemberg in Galicia, via Radziviloff and Volochisk.